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Editorial Notes

PEP on the Gas Industry

A DOCUMENT concerning the Gas Industry, running to over 100,000 words, with many tables and diagrams, was issued last week by PEP. Those who wish to study it in detail can buy it for 10s. 6d. from PEP, 16, Queen Anne's Gate, S.W. 1. In any case, it received a great deal of publicity in the National Press. *The Times*, for example, on the day of its publication gave over a column of news space to the proposals set out in the report, and also devoted a leader to it under the title "The Future of Gas." The leader, it is true, was non-committal, but by the implication of its title this highly responsible national newspaper would appear to attribute considerable authority to the report, and many of its highly responsible readers may have wondered what element in the Gas Industry was seeking to frame anew its policy and guide its destiny.

Many among the personnel of the Gas Industry must also, we suppose, know little or nothing of PEP, and must have been perplexed as to the why and wherefore of this voluminous report. Now PEP, which stands for "Political and Economic Planning," is, to use its own description, an "independent non-party group consisting of more than a hundred working members who are by vocation industrialists, distributors, administrators, officers of utility undertakings, engineers, economists, doctors, and so forth, and who give part of their spare time to the use of their special training in fact-finding and in suggesting principles and possible advances over a wide range of social and economic problems." The Gas Group of PEP, which has produced the present report, was formed in April, 1934. It is a self-constituted Group and preserves its anonymity.

Let it be said at once that this PEP report has been exceedingly well prepared, clearly by workers who have an intimate knowledge of their subject. It is evident that great care has been exercised in collating the relevant facts and figures. The information presented is both comprehensive and accurate, and from the point of view of information on the Gas Industry the report is a very valuable document for reference. But, having said this, several questions come immediately to mind. Who asked for a PEP report on the Gas Industry, and, having got one, who is going to do what with it? Does an anonymous report, appearing as a bolt from the blue, carry authority and weight? Is its production by such a secret group likely to enhance the Industry's prestige and give the public any confidence in its unity and the strength of its existing organizations? If, as it would appear, its compilers are fired with the zeal of reformation, have they directed their energies along lines which are likely to advance their cause?

The fact is that with much, though not all, of the report there can be general agreement. It is principally of the occasion and the circumstances that we are critical. Indeed, in the proposals of this anonymous Gas Group we can find little that has not at one time or another been advocated in speech or in writing fully authenticated by the names of men eminent in the profession. For example, the report advocates the adoption of promotional rates for gas; this is no new advocacy. It advocates co-ordination in research, regional planning, the recruitment of personnel of higher standard, grouping of undertakings, a central bureau for economic research, the setting up of a central authority with powers acquired from Parliament. These are old, old friends, and the fundamental aim of the Group, it would appear, is to accelerate by compulsion what is taking place at a slower rate voluntarily.

The chief proposals are the setting-up of a National Gas Authority responsible for the development of the Industry, and the appointment of Gas Commissioners. The main functions of the National Gas Authority would be: (1) To promote the grouping of undertakings within gas supply regions, defined by means of an initial survey, which might be carried out by regional commissions. (2) Through the regional groups to promote the rationalization of production and co-ordination of technical policy on the basis of evidence obtained in the survey. (3) To supervise nationally the marketing of coke; and to co-ordinate and extend national policies with regard to the marketing of other by-products.

(4) To guide the general line of commercial policy in the Industry as a whole. (5) To collect information and give advice on economic problems affecting the Industry. (6) To be responsible for the public relations of the Industry. (7) To put forward schemes for recruitment and training of personnel.

The Group states that, in view of the voluntary nature of the National Gas Council, this body is unable to settle authoritatively matters of controversy within the Industry, that the British Commercial Gas Association is not in a position to carry out major measures of reorganization, and that the British Gas Federation has not, up to the present time, been an important influence.

The Group's proposed reorganization of the Industry would involve the small local unit, contacting with consumers; the regional group, arranging where necessary for bulk supply and the extension and closing of works, providing common services of a technical or specialized nature, and directing marketing and bulk purchases of appliances within the region; the National Gas Authority, constituted from existing national organizations within the Industry, including the appliance makers; and Gas Commissioners administering the system of ultimate control in the interests of the consumer, under Parliamentary supervision, which is now administered by the Board of Trade.

This, then, summarizes very briefly the proposals of the PEP Gas Group, and they do not strike a particularly original note. The report, to which further reference is made later in to-day's "JOURNAL," does, however, set out clearly the reasons for the suggestions made and must have entailed a vast amount of work. All are agreed that there is scope for development of the great service which the Gas Industry already provides. If the PEP report can be applied in any way towards this end, it will not have been love's labour lost.

Civil Defence Bill

THE Government has now introduced the Civil Defence Bill, which mainly deals with the measures necessary for the defence of the civilian population in the event of war. The Bill is prefaced by a financial and explanatory memorandum. It follows in the main the statement previously made by Sir John Anderson, to which the "JOURNAL" has already referred. The Bill is a complicated measure, and although it must obviously be in the national interest that it should speedily pass into law, it will no doubt require considerable criticism in detail during the Committee stage.

It is to be emphasized that the Bill is not a mere temporary measure, but is designed to secure that in future the civilian population shall have adequate and permanent protection in the event of the outbreak of hostilities. The measures, therefore, which will be taken when the Bill becomes law must be regarded not as a mere temporary expedient, but as a permanent feature of our national life. It will be realized that in an age in which the blackmail of the civilian population by the threat of war has become a feature of international relations, it is essential that measures of protection should be permanent. Such permanence is as important as the continued maintenance of the armed forces.

The Bill as introduced is divided into various parts. Many of the parts of the Bill will not affect public utility undertakers. Such undertakers are exempt from those provisions which entitle local authorities to requisition premises for air defence purposes. Further, public utility undertakers are virtually excluded from those parts of the Bill which deal with factories and commercial establishments. But in certain details, such as obligations to camouflage or obscure glare, public utilities would be in a similar position to other industries.

The principal provisions which affect public utilities are contained in Part 6 of the Bill. The effect of this part of the Bill would be to place upon all undertakers, whether statutory or non-statutory, the obligation within three months to make a report showing the measures they have taken to indicate to their employees the routine to be followed in the case of air attack, and the steps which have been adopted to train squads in first aid, fire fighting, and anti-gas measures.

In addition to this, the Board of Trade will be entitled to require public utility undertakers to make a report stating (*a*) the measures which they have taken to provide air raid shelters for employees; and (*b*) the measures they have taken to ensure the due functioning of their undertaking in the event of hostile air attack. Where this report has been made, the Board of Trade may require any of these measures to be put into operation.

Where undertakings are situated in areas which are declared to be vulnerable it will be their duty to make such a report within three months of the declaration of their area as vulnerable, although no request for such a report has been received from the Board of Trade. The measure of financial assistance which will be granted by the State in connexion with these provisions will be a grant of a maximum amount of 50% towards the expenses incurred in securing the due functioning of the undertaking. It is somewhat unfortunate that the Government have refused to introduce provisions whereby this grant will not in effect be diminished by income-tax liability.

With regard to the provision of shelters for employees, it is clear that much of the work would in any event be of a revenue nature, but where this is not the case the Government propose to grant an amount equal to the standard rate of income-tax upon the sums so expended. Many would no doubt have been glad to see financial assistance of a more liberal nature given by the Government, but, at the same time, it will be appreciated that the taxpayers of the country are subject to a strain which is unprecedented in times of peace. Whatever financial assistance may be forthcoming, the magnificent service rendered to the country by the Gas Industry during the Great War is evidence that in times of national emergency the Industry can be relied upon to do its duty.

Benzole Recovery

"IN 1932, when I read a Paper before you on benzole recovery at Devonport, I stressed the national and local benefits of this process, which was then by no means orthodox practice in medium-sized and small gas-works. I am as enthusiastic to-day as I was then, and am pleased to think that my undertaking has now produced more than one million gallons of crude benzole. I know that many gas engineers still have their doubts as to whether or not the production of benzole is profitable. For my own part, and as far as my own undertaking is concerned, I am certain that we should not have been able to maintain our present price of gas had it not been for this ideal and silent consumer." We quote this from the Presidential Address of Mr. Frank Blackburn, Engineer and General Manager to the Plymouth Gas Department, to the Southern Association of Gas Engineers and Managers. It is a clear cut statement and has much significance in view of the very great interest which is at present being taken in this subject of benzole recovery, the economic aspects of which have been discussed at length almost weekly

in our columns since the beginning of the year. The Plymouth Gas Department has for many years cultivated the coke market. It has sold a carefully graded coke of good and uniform quality, and it has reaped the obvious advantages of this policy. In 1932 the Department had no hesitation in putting on to the market the additional coke resulting from benzole extraction. The benzole recovered at Devonport represents a consumer some 4 million cu.ft. more than the annual bulk supply (49 million cu.ft) to H.M. Government establishments; and Mr. Blackburn explained that had the two consumers been identical in quantity the revenue derived from the benzole consumer would have been some £3,000 more than from the Government establishments.

There can be no doubt of the growing public demand for cheap, clean, and smokeless fuel, both solid and gaseous. As we have said so many times, a good coke market enables the Gas Industry to sell cheap gas. Particularly in the homes of those with limited incomes the field for smokeless solid fuel is enormous; and if the Gas Industry does not set out to cater for it, somebody else will not be slow to step in and seize the opportunity. In a letter on benzole recovery published in the "JOURNAL" last week, Mr. F. H. Robinson, of Bishops Stortford, pointed out that each case must be dealt with on its merits—which, of course, is perfectly true. It is also true, we think, that any curtailment in the quantity of coke for sale by the Gas Industry will be to the benefit of competing fuel industries; and we feel sure that the policy of the Industry should be to develop the sale of a well-prepared smokeless solid fuel hand in hand with the sale of the more refined gaseous fuel. Given drive and enthusiasm much more high-temperature gas coke could be sold.

Also in the "JOURNAL" last week was an interesting letter from Mr. F. Firth, of Leeds, in which he expressed further views on the economics of benzole recovery. He touched on the important question of the cost of water gas production by steaming in continuous vertical retorts. Heavy steaming, using the benzole to carburet the water gas made, means that for the water gas reaction to be effective extra coke must be used in the producers. Is it economical to supply this extra heat for the external heating of the retort to maintain the coke charge at a temperature high enough for the water gas reaction? Is water gas produced more cheaply by steaming in verticals than by manufacture in external water gas plant? It is very difficult indeed to see how it can be.

Widely varying figures for steam consumption in benzole recovery have been quoted recently. In this connexion we would call attention to a Paper read to the Western Junior Gas Association by Mr. A. Rhead, of Exeter. The designers of the recovery plant at the Exeter Gas-Works guaranteed a consumption of not more than 37 lb. of steam per gallon of 65's crude benzole. This figure proved to be in excess of that obtained in practice. A test gave a figure of 31 lb. of steam per gallon of 78's benzole; and Mr. Rhead stated that from the makes of benzole of different qualities it has been calculated that for 65's benzole only about 24 lb. of steam would be required.

National Service

ALL qualified gas engineers are to be asked voluntarily to enrol on a Central Register of the National Service Department of the Ministry of Labour. Needless to say, this applies not only to gas engineers, but to all members of the principal scientific, technical, and professional institutions. In the event of war the Central Register will be able to supply, where needed, additional requirements of specially qualified personnel. The idea is so sound that it needs no commendation from us, and we hope and believe that the response on the part of gas engineers will be general and immediate. The Register is another, and by no means unimportant, step towards preparedness for emergency. It will enable the responsible Ministries to get into touch without delay with those whose specialized knowledge or experience may be urgently needed for particular branches of work of national importance.

In time of peace the Gas Industry performs an essential national service. In time of war its vital importance in maintaining a supply of gas, particularly to industries engaged on Government work, and as a supplier of raw materials for munitions, is fully appreciated. A large proportion of qualified engineers and their technical staffs would be expected, in a national emergency, to remain at their present posts. At the same time it must be in the national interest to have a full record, in the Central Register, of qualified engineers. The usefulness of the Register will be in proportion to its completeness; and we look to a maximum response to the Ministry of Labour's appeal.

Radiation Limited

ELSEWHERE in this issue will be found a report of the Chairman's speech at last week's Annual Meeting of Radiation Limited. The story Mr. Yates had to tell was of a year of difficulties, which in all the circumstances must be judged to have been satisfactorily surmounted. For this the shareholders must be grateful to the management for the sure foundations upon which the business has been built up—continuous technical progress based upon research which has never lost direction, and a financial policy which has stood them in good stead alike when matters have been easy and not so easy.

The supply side of the Gas Industry, too, has reason to show more gratitude than it sometimes does to the appliance makers—particularly when they are successful. It is very short-sighted to grudge them success in any degree at all. In the particular case, for example, of Radiation, their success and the continuous development of improved appliances have been entirely interdependent, and improved appliances have been an absolute necessity to the Gas Industry in the highly competitive post-war years. Apart from this, the standing of Radiation as one of the great industrial concerns of the nation means a very great deal for the prestige of the Industry, of which this great firm is an integral part.

H. James Yates

IT seems strange that so momentous a happening as the retirement of Mr. H. James Yates should have been covered by so few lines of the speech, but, since it was his own, presumably more could not be expected. Last week, when the news was "out" in the Directors' report, we gave some details of his remarkable career. Unfortunately, the "JOURNAL" subscription list is not so large as the stockholders' list of Radiation Limited, and we are very doubtful whether those stockholders have more than a slight idea of the gifts which their retiring Chairman possessed, or of the unflagging zeal with which he dedicated them, as well as the whole of his time and indeed himself, to the business. In his own simple words, he has devoted the whole of his life to the gas stove business. A man who controlled his own gas stove business at the age of 18, and went from success to

success, might well have claimed some leisure when once his big achievement—the Radiation combine—was safely on the road he had planned for it. He might even have sought some widening of his interests, which indeed would have been open to him in practically any direction in which he had cared to turn. But his heart was undoubtedly in the Gas Industry, and particularly in its research laboratory, and the Industry is the richer for his persistence.

We of the "JOURNAL" have known Mr. Yates for many years, not only for his long succession of scientific achievements, but from the influence which such a man is bound to have on the thoughts and policy of an industry, and consequently its Press. No eulogy of ours can enhance the name he has made for himself in a lifetime of service to the Gas Industry; we can only sincerely wish him health and strength to enjoy the long-deferred holiday to which, we know, he is looking forward with a youthfulness of spirit remarkable in a man of his age.

With us, the Industry will offer its best wishes to Mr. Yates' successor in the Chairmanship and to the Managing Directors, who will, we know, have the great Radiation tradition in safe keeping.

Personal

Mr. J. LEGER HAWKSWORTH, who for some time has been Accountant to Wath, Bolton, and Thurnscoe Gas Board, has now retired.

* * *

Mr. CLIFFORD S. WILSON, who has been Sales Manager at the Old Silkstone Collieries, Ltd., Dodworth, near Barnsley, since 1910, has expressed his desire to retire from the Company's service on health ground. His resignation has been accepted with very great regret by the Board.

* * *

Mr. SAMUEL MILNE, Engineer and Manager of the Aberdeen Corporation Gas Department, who is shortly to retire, was on March 31 presented with a luncheon basket and fishing rod by Mr. James Cumming on behalf of the workers and with a typewriter and binoculars by Mr. Alexander Auld, Technical Assistant, on behalf of the Technical Staff. Mr. Milne joined the Department in 1891, and was apopointed Engineer and Manager in 1903.

Mr. J. Percy Trail, Chief Clerk, the only active member of the Department, who was serving when Mr. Milne joined it, presided, and said that for nearly forty-eight years Mr. Milne had given faithful service. He had been responsible for the steady growth and improvement in gas manufacture and distribution. The good work would be continued by his son and successor, Mr. Harold S. Milne.

Mr. Milne, in reply, recalled that the number of men employed by the Gas Department when he entered the service in 1891 was 191. This number was now 338. The number of consumers had risen from 25,000 to 55,000 and the make of gas had increased from 367 million cu.ft. to 1,880 million cu.ft.

* * *

Mr. J. H. KELLY, Works Chemist and Technical Assistant to the Kendal Gas Department, has been appointed to the position of Chemist to the Plymouth Corporation Gas Department (Devonport). He will commence his duties on May 1.

This is the third removal from Kendal within the past two years, the other two being Mr. J. L. Wilson, now District Manager to the Watford and St. Albans Gas Company, and Mr. P. Dawson, who is Chief Assistant at the Wisbech Water and Gas Company. All three served their Articles under Mr. Thomas Crowdy, Engineer and Manager of the Gas and Water Department, and also Lighting Engineer to the Kendal Corporation.

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At a meeting of the Board of the Cefn Mawr and Rhosymedre Gas Company, Ltd., on March 31, Mr. THOS. R. EVANS was appointed Managing Secretary and Mr. H. B. MOULT Works Manager.

Obituary

The death has occurred of Mr. CHARLES KEMP, a Director of the Keith Gas Company.

* * *

We regret to announce the death last Thursday of Mr. FRANK H. VINCE, Civil Engineer to the South Metropolitan Gas Company. Mr. Vince started his career with the Gas Industry in 1910, when he entered the service of the Birmingham Gas Department. In November, 1921, he was appointed to the position of Resident Works Superintendent at the Redheugh Works of the Newcastle-upon-Tyne and Gateshead Gas Company, remaining there until September, 1928, when he obtained a similar position at the Granton Works of the Edinburgh Gas Department. In May, 1930, he was appointed Resident Engineer of the Rotherhithe Works of the South Metropolitan Gas Company.

North British Association of Gas Managers.

Spring Meeting.

The spring meeting of the North British Association of Gas Managers will be held at Leven in the Carlow Hall, Durie Street, on April 14, when the Chair will be taken by Provost W. H. Nairn, Leven. The members will be welcomed by Provost W. Smart, J.P., Buckhaven and Methil. Mr. H. A. Aitken, Engineer and Manager of the Buckhaven and Leven Gas Undertaking, will deliver his Presidential Address. Following the business meeting, members will be entertained at luncheon in the Scoonie Hall, Victoria Road, Leven, at 1 p.m., on the invitation of the Buckhaven and Leven Gas Commissioners. After luncheon, by invitation of Messrs. Henry Balfour & Co., Ltd., members are invited to inspect the Durie Foundry. Tea will be provided.

A golf competition, under handicap rules, will take place over the Leven Golf Course on April 13. The Silver Cup, presented by Mr. J. Winson Scott, Manchester, will be played for.

Manchester District Association of Gas Engineers

Lancashire Commercial Section

Mr. Thomas Haworth, F.C.S., A.M.I.Chem.E., Engineer and General Manager of the Darwen Gas Department, has been elected Hon. Secretary and Treasurer of the Lancashire Commercial Section of the Manchester District Association of Gas Engineers as from May 1 in succession to Mr. Ernest Parry, Commercial Manager to the Oldham Gas and Water Departments, who has held the positions for twenty years and has tendered his resignation on medical advice.

"GAS JOURNAL" Directory

In order that readers may be able to keep the particulars contained in the "JOURNAL" Directory up to date, we summarize in the following list various changes which have occurred during the past month:

Page 14. CALVERLEY. J. M. MacLusky appointed E. & G.M. vice J. MacLusky resigned.

„ 16. CEFN MAWR. T. R. Evans appointed Managing S. & H. B. Moult, W.M.

„ 80. ABERDEEN. H. S. Milne appointed E. & M. vice S. Milne, retired.

„ 96. BANGOR (Co. Down). B. Mitchell, E. & M., retired.

„ 96. ENNISKILLEN. F. A. Sadlier, S., deceased.

News of the Week

Gas Supplied by the Halstead Gas Company, Ltd., from July 1 onwards will have a declared calorific value of 500 B.Th.U. per cu.ft.

The Calorific Value of the gas supplied by the North Cheshire and District Gas Company to consumers in their Hyde, Bredbury, and Romiley areas on and after July 1 will be raised from 475 to 500 B.Th.U. per cu.ft.

Tenders for the reconstruction of carbonizing plant, involving the dismantling of the existing downwardly-heated retorts and the rebuilding of new upwardly-heated retorts, are to be obtained by the Birkenhead Gas Committee. The scheme is estimated to cost £57,000, of which £5,000 will be for work to be undertaken by the Department.

Very Well Attended Cookery Demonstrations were recently held by the Retford Gas Department in conjunction with Messrs. Falk, Stadelmann, & Co., Ltd. The series commenced on March 6 and terminated on March 17. Miss E. D. Newberry demonstrated on a streamline "Newhome" cooker, incorporating the "Duex" grill boiler burner, and many other "Rainhill" products.

Application for an Order under Section 1 of the Gas Undertakings Act, 1929, is intended to be made to the Board of Trade by the Tottenham and District Gas Company with the object of authorizing the Company "to borrow on mortgage of their undertaking or by creation and issue of debenture stock an amount not exceeding three-quarters of the amount of the paid-up share capital of the undertaking for the time being and of any premiums paid in respect thereof."

Police Officers Searching for Explosives in Bold Street, Liverpool, where damage had been caused to retail shops, made a timely discovery at the premises of Messrs. J. Wright & Co. (Radiation Ltd.). Smoke was seen rising from behind a chromium plated barrier in front of the window. Behind it was found a small brown paper parcel which "sizzled" as the officer picked it up. Throwing it into the roadway, he had only just time to take shelter before there was a loud explosion and a sheet of flame.

The Fusion of the Gas and Electricity Departments was discussed recently by the St. Helens Corporation Finance Committee, and the appointment of a Special Committee to consider the advisability of this on financial grounds has been recommended. At the Town Council, Alderman J. Hewitt (Chairman of the Electricity Committee) moved that that minute be deleted. He said that experiments of that kind of thing in other towns had proved it was not in the best interests of the town itself. There should be no limitation of the free choice of everybody to use electricity or gas. Councillor R. Austin Pilkington said that the two Departments concerned were formed in the days of prosperity, and he asked if it would be possible to effect economies by closer working. The matter was taken back for further consideration.

A Home Service Exhibition was recently promoted by the Ormskirk District Gas Company, in conjunction with the United Kingdom Gas Corporation, Ltd.

Land is to be Purchased in Barnbygate, Newark, by the Gas Committee. The land is opposite the Gas-Works and will probably be used for the storage of coal and coke. It may be necessary to erect an extra gasholder on the land in the near future.

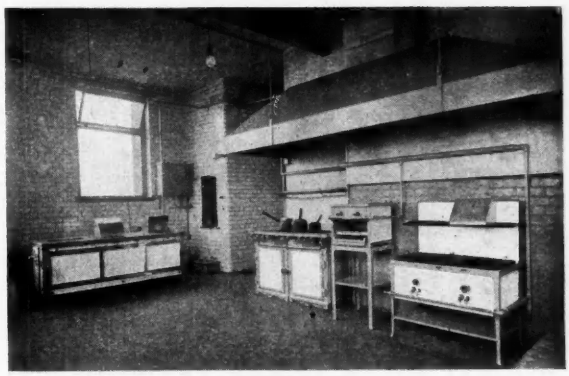
Following a Collision, an examination was made of a damaged lamp standard in a Grantham street. The date 1833 was discovered at the foot of the standard. It was in that year that the Grantham Gas Company was formed and the town streets were first lighted by gas. So it appears that this particular standard had given good service to the town for 106 years.

In Spite of Improved Public Lighting, it was reported at the March meeting of the Chatham Town Council that owing to a reduction made by the Rochester, Chatham, and Gillingham Gas Company in the charge per lamp under a new agreement the Street Lighting Committee would require £239 less next year. It was also stated that a number of new gas lamps were to be placed on various sites in the town.

Benzole Recovery Plant has been installed at the Works of the Dover Gas Company. This was announced by the Chairman, Sir David Milne-Watson, LL.D., D.L., at the annual meeting which was held on March 22. Sir David said that the sale of benzole would be a valuable source of revenue to the Company, while at the present time the extraction of motor spirit from coal was of national advantage, as it reduced our dependence on supplies of imported oil.

The Second Part of Lanchester's "Potted Logs" is now available from the publishers, Messrs. Taylor & Francis, Ltd., Red Lion Court, Fleet Street, E.C. 4, price 1s. We reviewed the first part in our issue of Dec. 28, 1938, and in the present publication three additional tables are given. The first of these is a direct-reading table of Log_e covering numbers ranging from 1 to 108; the second is a table of five-figure logarithms in ordinary NL form; and the third will be of interest to the musician, being a table in anti-log. form to the base 1·059463—the foundation of equal temperament.

Gas Charges were considered recently by the Birkenhead Gas Committee, which has decided to re-submit to the Town Council its resolution which was withdrawn a month ago, to increase the price of gas by 3d. per 1,000 cu.ft. or ¾d. per therm, bringing the price for ordinary lighting or domestic use to consumers in the Borough to 3s. 3d. per 1,000 cu.ft., or 8¾d. per therm. The price outside the Borough will be 3s. 8¾d. per 1,000 cu.ft. (9$\frac{11}{12}$d. per therm). The existing charges for gas for industrial, commercial, and central heating purposes are to be increased by 5% and for consumption through slot meters by 3d. per 1,000 cu.ft. The new charges are proposed to come into operation on June 30.



The Kitchen of the Co-operative Central Stores, St. Helens, has recently been fully equipped with up-to-date gas apparatus. Our photograph shows some of the Radiation appliances which have been installed.

The Institution of Gas Engineers

Members of The Institution of Gas Engineers will be welcome at a Meeting of the Institution of Chemical Engineers to be held in the Rooms of the Geological Society, Burlington House, London, W. 1, on Tuesday, April 18, at 6 p.m. A Paper will be presented by Mr. E. S. Byng on "Administrative Training for the Chemical Engineer."

I.G.E. Examination Dates.

The Written Examinations of The Institution of Gas Engineers will be held throughout the country on April 29 in Gas Engineering (Manufacture) and on May 6 in Gas Engineering (Supply).

Copies of the following recently issued British Standard Specifications can be obtained (price 3s. 6d. each) from the Secretary of the Institution of Gas Engineers:

No. 135-1939. Benzoles (Superseding No. 135-1921).
No. 458-1939. Xyloles (Superseding No. 458-1932).
No. 479-1939. Coal Tar Naphthas (Superseding No. 479-1933).
No. 805-1939. Toluoles.

Amalgamation and Grouping

Runcorn and Ellesmere Port.

The Ellesmere Port U.D.C. has approved the sale of their Gas Undertaking to the Runcorn and District Gas Company, a Subsidiary of the United Kingdom Gas Corporation, Ltd., at a price of £120,000.

During negotiations the reduction in the price of gas proved a contentious point. Concessions were agreed upon, including an offer by Runcorn to introduce a two-part tariff. The result will be that consumers will save as much as 3s. 2d. on an annual consumption of 13,000 cu.ft. of gas, and there will be other *pro rata* savings on consumption. At the present price paid for gas, consumers benefit to the extent of about £4,000 per annum. Ellesmere Port is also promised a new tariff of charges for street lighting which will result in the saving of £510 per annum.

It was announced at Monday's meeting of the Ellesmere Port Council that steps would be taken to put forward a bill in Parliament which would combine the Undertaking with the Runcorn Gas Company, and it would be known as the West Cheshire Gas Company. Until the bill was through, the Council would continue to work the Undertaking. All the costs would be borne by the new Company.

United Kingdom and Morley.

A further important stage in the development of the West Yorkshire Gas Grid has been reached with the announcement of an agreement entered into for the purchase of the Morley Municipal Gas Undertaking for £80,000 by the United Kingdom Gas Corporation, Ltd. The agreement to purchase is, of course, subject to confirmation by a Board of Trade Order. By this and other recent purchases the area of the West Yorkshire Grid system will be extended from 460 to 690 square miles and the population coming within its scope increased from 550,000 to 725,000. The Morley Undertaking will be amalgamated with the United Kingdom Gas Corporation's Subsidiaries at Drighlington and East Ardsley as a single distributing unit situated between the eastern and western arcs of the present network. These arcs will now be interlinked.

Wellingborough and Wollaston.

A Draft of the Special Order for which the Wellingborough Gas Light Company are applying to the Board of Trade under the Gas Undertakings Acts, 1920 to 1934, has been laid before both Houses of Parliament for approval by Resolution. Briefly the objects of this Order relate to the acquisition by the Wellingborough Company of the Undertaking of the Wollaston Gas and Coke Company. Reference to this proposed amalgamation has been made previously in these columns.

Associations of Gas Engineers and Managers

Reports of Proceedings, 1938

The reports of proceedings during 1938 of the various Associations of Gas Engineers and Managers are now available in the familiar bound form. The Associations whose transactions are fully dealt with are the Eastern Counties Gas Engineers' and Managers' Association, Irish Association of Gas Managers, Manchester District Association of Gas Engineers, Midland Association of Gas Engineers and Managers, North of England Gas Managers' Association, Southern Association of Gas Engineers and Managers, Wales and Monmouthshire Association of Gas Engineers and Managers, and Waverley Association of Gas Managers. The publication, which includes a list of officers and members of all the above Associations, may be obtained from the "GAS JOURNAL," Messrs. Walter King, Ltd., 11 Bolt Court, Fleet Street, E.C. 4. Price 12s.

Gas in an L.C.C. Estate.

On Thursday, March 30, the King and Queen paid an official visit to the King's Mead Estate of the London County Council at Hackney Marshes.

The Estate comprises approximately 950 flats, and all the hot water requirements are supplied by gas, the Ewart multi-point or storage type heater being installed in each flat.

It is interesting to note that the firm of Ewart & Son, Ltd., was established as long ago as during the reign of William IV., and the Company naturally feel proud that to-day in the reign of George VI., Ewart gas water heaters should be a popular choice of public authorities and gas undertakings, where long service and low maintenance costs are of prime importance.

Forthcoming Engagements

April.

8.—Scottish Juniors (Eastern).—Visit to Pumpherston Refinery of Scottish Oils, Ltd.
14.—North British Association.—Spring Meeting at Leven.
15.—London and Southern Juniors.—Visit to Nine Elms Gas-Works.
17.—G.C.P.A.—Committee Meeting, 2.30 p.m.
18.—I.G.E.—Finance Committee, 1.45 p.m.; Membership Committee, 2.15 p.m.; Benevolent Fund Committee of Management, 3 p.m.
19.—National Gas Organizations in Scotland.—Annual Meeting of Federation of Gas Employers, 11.30 a.m.; Annual Meeting of National Gas Council, 2.30 p.m. Both meetings at Central Station Hotel, Glasgow.
20.—Southern Association (Western District).—Commercial Meeting, Rougemont Hotel, Exeter, 2.30 p.m.
22.—Western Juniors.—Annual General Meeting at Bristol.
22-25.—B.C.G.A.—Annual Conference at Brighton.
26.—I.G.E.—Domestic Heating Committee, 2.30 p.m.
26.—Southern Association (Eastern District).—Meeting at Gas Industry House, 2.30 p.m. Discussion on "Breeze Production and Disposal."
27.—I.G.E.—Gas Education Executive Committee, 11 a.m.; Gas Education Committee, 2.30 p.m.
28.—I.G.E.—Specifications Sub-Committee of the Refractory Materials Joint Committee, 2.30 p.m.
29.—I.G.E.—Written Examinations in Gas Engineering (Manufacture).
29.—Midland Juniors.—Visit to Coventry Works of Geo. Wilson Gas Meters, Ltd., and to Foleshill Gas-Works.

May.

1.—I.G.E.—Research Executive Committee, 2.30 p.m.
2.—I.G.E.—Finance Committee, 9.30 a.m.; Membership Committee, 10 a.m.; General Purposes Committee, 11 a.m.; Council, 2.30 p.m.
5.—North of England Association.—Annual Meeting at Newcastle.
6.—I.G.E.—Written Examinations in Gas Engineering (Supply).
6.—Manchester and District Juniors.—Visit to Higginshaw Gas-Works, Oldham. Paper by F. Cartledge on "Coal and Coke Handling Plant at Higginshaw."
9.—London and Southern Juniors.—Annual Business Meeting.
10.—S.B.G.I.—Council Meeting, 56, Victoria Street, S.W. 1, 11.30 a.m.; Annual Meeting in the afternoon at the May Fair Hotel.
11.—Midland Juniors.—Annual General Meeting. Address by G. Dixon (Nottingham).
13.—Scottish Eastern Juniors.—Annual General Meeting at Edinburgh. Presidential Address of R. Cowie, Jnr. (Hawick).
13.—Yorkshire Juniors.—Meeting at Harrogate. Short Papers by D. C. Gunn, J. W. Stacey, and H. Ramsden.

Here is a Parkinson "Renown" cooker in use at the Leadgate Council School, Shotley Bridge, during the Domestic Science course, and shows the housewives of the future being educated in the use of gas for cooking. Credit is due to the Shotley Bridge and Consett District Gas Company for their initiative in arranging for a thoroughly up-to-date gas cooker to be in use in one of the biggest Council Schools in North-West Durham

PEP Report on the Gas Industry

The Gas Group of PEP (Political and Economic Planning) has published a report on the Gas Industry of Great Britain (PEP, 16, Queen Anne's Gate, S.W. 1, price 10s. 6d.). It surveys current trends and problems, and sets out proposals for its future development. The following are extracts from the report, which is the subject of editorial comment in to-day's "JOURNAL."

The three main defects in the organization of the Industry are (1) the multiplicity of small units; (2) lack of co-ordination on technical and commercial policy; (3) weakness in personnel. While much can be done to improve this state of affairs by the provision of technical centres supported by several undertakings, rationalization of the productive system and joint marketing depend upon a measure of reorganization.

For many purposes regional organization is best suited to the needs of the Industry; for example, the utility of regional technical centres and coke marketing has already been proved. But there are some questions which cut across regional boundaries. Appliance policy is one example. On a great many important subjects national organization and direction are necessary. This has already been recognized in the Industry, which has spontaneously formed various national associations. Moreover, national initiative is necessary to formulate and guide a scheme for reorganization and, indeed, to define the regions which are to play so important a part in operation. It is concluded:

(1) That the original initiative towards reorganization must come from the centre. A national body must formulate certain general geographical, technical, and commercial principles of policy; and stimulate progress on the lines laid down.

(2) Within this framework the maximum of responsibility would be left to regional groups, as the operating units.

(3) Contact with the consumer would remain with the smaller local unit within the group.

Self-Government.

The Industry has shown very considerable powers of adaptation and self-government. But the difficulty of achieving a large degree of reorganization quickly would be too great without a strong stimulus from the centre. Two of the usual incentives to reorganization are lacking—foreign competition and competition within the Industry. Competition from electricity is fairly strong, but of recent origin. There is, however, an urgent need for action. While the Industry as a whole is in a sound condition, consumption per consumer is declining, and the newly gained industrial load is not a stable one. As an essential part of national fuel supply, the Industry might be nationalized in an emergency, or under a Labour Government. It would be better that the Industry should be ready with its own plans. Too often reorganization is left too late, when it becomes both more difficult, more costly, and less effective. The Industry should take advantage of its present position to secure its future.

It is suggested that the Industry itself should be responsible for formulating a scheme. For this purpose a national body is necessary which would represent both the supply industry and the makers of plant and appliances. The British Gas Federation, which does represent both sides, is not at present so constituted as to undertake the task. The formation of such a body should present no difficulty.

A National Gas Authority.

It is suggested that the central body, to be responsible for the development of the Industry, should be called National Gas Authority. Its main functions would be:

(1) To promote the grouping of undertakings within gas supply regions, defined by means of an initial survey, which might be carried out by regional commissions.

(2) Through the regional groups to promote the rationalization of production and co-ordination of technical policy on the basis of evidence obtained in the survey.

(3) To supervise nationally the marketing of coke; and to co-ordinate and extend national policies with regard to the marketing of other by-products.

(4) To guide the general line of commercial policy in the Industry as a whole.

(5) To collect information and give advice on economic problems affecting the industry.

(6) To be responsible for the public relations of the Industry.

(7) To put forward schemes for recruitment and training of personnel.

Once the necessary evidence had been obtained, it would be the duty of the National Gas Authority to enunciate general lines of policy, leaving detailed administration to the regions. The progress towards rationalization would not be hurried; as far as possible changes in plant, &c., would be made at the natural periods when renewals were due. It might be necessary for the central body to have powers to prevent new developments running counter to the general plan.

Grouping.

Perhaps the most important task of the National Gas Authority would be to stimulate the grouping of undertakings. No one method of grouping is here suggested as ideal. The various methods are:

(*a*) Amalgamation.
(*b*) Holding Company Control.
(*c*) Joint Management.
(*d*) Mixed Undertakings.
(*e*) Gas Boards.

Amalgamation, while it has important uses, is a slow process, and cannot normally be applied to municipal undertakings. The virtues and dangers of holding company control are dealt with in some detail. The chief requisites for satisfactory progress are (1) that control should follow a regional principle; (2) that capital inflation be avoided; (3) that the holding company should have a responsible attitude in the development of subsidiaries in the interest of gas consumers. Joint management may in some areas be a useful method of co-ordinating two or more municipal undertakings. The "Mixed Undertaking" is a new company to which a municipal and a company undertaking are transferred, with representation on the Board in proportion to capital contributed. The Gas Board would be formed on the analogy of other public utilities such as the London Passenger Transport Board.

Assuming that local undertakings are gradually combined into regional groups, the regional co-ordination of commercial policy should follow. No definite constitution for those regional groups is suggested. It is quite possible that several large groups of undertakings could co-operate on marketing on a democratic basis, with voting power based on output. A single regional marketing organization would be the final stage of development.

Tariffs.

The national body would undertake a campaign to educate the general public in the use of differential tariffs. It would supply information and advice to local undertakings on tariff policy, and would exert pressure on them to put forward schemes at the earliest possible opportunity.

The National Gas Authority would organize a central bureau for economic research, and would be responsible for improving the public relations of the Industry and its methods of recruiting and training personnel.

Powers of a National Gas Authority.

The main intention of the recommendations made is to stimulate voluntary reorganization within the Industry. It is believed that the existence of a purposive scheme and of facilities for its execution would of itself do this. But it may be necessary to have powers in reserve. For example, the rationalization of production could be seriously held up by a recalcitrant undertaking, or by the promotion of a conflicting scheme. Certain powers of veto, and positive power to require the formulation of a scheme for reorganization might be necessary. It would be for the National Gas Authority to acquire these powers from Parliament.

The Gas Industry and the State.

Public interest in the service given by the Gas Industry has long since led to an increase of State regulation, which is in the hands of the Department of Gas Administration of the Board of Trade. Undertakings are bound to give a supply and to maintain certain standards, and there are provisions intended to control prices and profits. It is not suggested that such control should be weakened or that it should be devolved on the Industry, but it is proposed

that a distinction should be made between judicial control, which should remain with the State, and development and reorganization, which should be entrusted to the National Gas Authority representing the Gas Industry. There would be an appeal against the Authority on certain points, both for individual gas undertakings and other persons. The object of these recommendations is to reconcile the need for safeguarding public and private rights with the need for ensuring the progressive development of the Gas Industry, which existing methods of control tend to obstruct, particularly as regards tariffs.

Regulation of maximum prices has provided no incentive to reduce costs or to increase the use of gas, and Parliament has tried various methods of overcoming the difficulty without allowing the Industry sufficient freedom over price policy to adopt a modern promotional tariff until very recent years. Besides failing to stimulate development, existing price regulation is unreliable. There is, however, now an effective safeguard for the consumer in the shape of strong competition in every department of gas sales, and this makes the system of control created when gas was a monopoly still more inappropriate. It is therefore urgent that recommendations of the Gas Legislation Committee and the Joint Select Committee on Gas Prices should be implemented by giving the Industry a right to impose a minimum quarterly charge. Government control generally should be modernized, and should be transferred from the Board of Trade to Gas Commissioners on the general lines of the Electricity Commissioners.

In its working shape the proposed reorganization of the Industry would, therefore, involve:

(1) The small local unit—either a separate undertaking or a branch—whose main responsibility would be for local contact with consumers, including sales, installations, maintenance, and service work.

(2) The regional group, which might be either a co-operative body or an amalgamation, planning production for the region as a whole, arranging where necessary for bulk supply and the extension and closing of works, providing common services of a technical or specialized nature, and directing marketing and bulk purchases of appliances within the region.

(3) The National Gas Authority constituted from existing national organizations within the Industry, including the appliance makers, supervising and co-ordinating the operations of regional groups, providing certain central services, and conducting the relations of the Industry with the public in general, the State, and other industries.

(4) Gas Commissioners administering the system of ultimate control in the interests of the consumer, under Parliamentary supervision, which is now administered by the Board of Trade.

Alleged Maladministration at Southport

The hearing was resumed on March 25 at the Southport Police Court, of summonses against Mr. J. H. Clegg, the Southport Corporation Gas Engineer, and Mr. W. E. Plevin, the Deputy Engineer, alleging conspiracy at the gas-works in illegal practices in the administration of the Gas Undertaking. Reports of previous hearings were published in the "JOURNAL" for March 1, 15, 22, and 29.

Marchant (one of the chemists), questioned by Mr. Shawcross (prosecuting), explained that when he said that Plevin was forced to use the system of the special holder, he meant that when Plevin first knew that they used the special holder he was reluctant to continue its use, but as they were not manufacturing gas of the declared calorific value it became necessary to use the special holder in order that the Gas Examiner might attain the required quarterly average. Witness alleged that Plevin asked them (the chemists) to prepare the special holder.

Questioned by the Bench, Marchant agreed he had said that neither Clegg nor Plevin instructed the chemists to put the level of water in the old Hyde meter correctly. Plevin, he alleged, must have known it was wrong, because of the fact that the Gas Examiner's tests were occasionally higher than the works tests at a time when no special holder was in use. He could not say that Clegg knew it was wrong.

Evidence was then given by Thomas Howard, another chemist at the Crowlands Works. He said that between October, 1936, and January, 1938, the gas was not being maintained at the declared calorific value. Witness alleged that on a number of occasions the Gas Examiner was deceived as to the value of the gas being supplied by the use of a special holder. The Examiner got a higher test from the special holder than from the holders normally supplying the town.

Witness was cross-examined by Mr. Robertson Crichton (for Plevin).

Mr. Crichton: You have been employed in making gas for a good number of years?—Yes.

It is not putting it too high that for the last ten years at Southport things have been in a very insecure and bad way, both as regards the maintenance of calorific value and the maintenance of the plant at the works?—Yes.

And also in regard to the alleged irregularities that have been existing during that period, the special holder, for instance?—Yes.

Mr. Crichton: Supposing Plevin felt it his duty to see that these alleged irregularities were abolished and that entirely regular and legal practices were instituted at Crowlands, surely, then, you would agree that his task was extremely hard?—Yes.

Did you expect when this Deputy Gas Engineer came he would be a new broom, sweeping clean?—I expected him to do his work to the best of his ability, and carry on as best he could.

Did you expect him to get rid of the special holder?—That was his business, not mine.

As an experienced man and, I hope, an honest man in this way, did you ever suggest to Mr. Plevin when he came that you would assist him in every way you could to get rid of these alleged illegalities?—Illegalities were never mentioned for some considerable time.

Did you at any time offer assistance to Mr. Plevin for the specific purpose of clearing up these alleged irregularities and illegalities?—No.

Mr. Crichton: So far as the Gas Examiner's tests went, would you say these were accurate tests?—No.

Mr. Blackledge (for Clegg): You are practically a hereditary member of the gas-works, aren't you?

Witness: Yes, my father was there before me and my grandfather.

You were, so to speak, brought up in the true Southport gas-works tradition?—Yes.

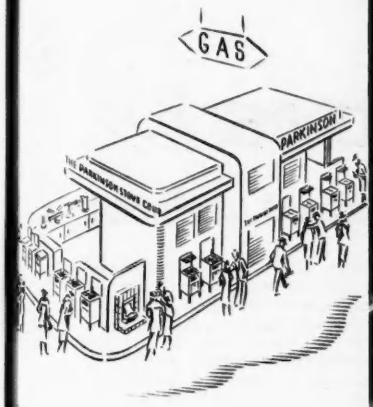
A tradition of deception, was it not?—Yes, so far as calorific value is concerned; we have never supplied the declared value.

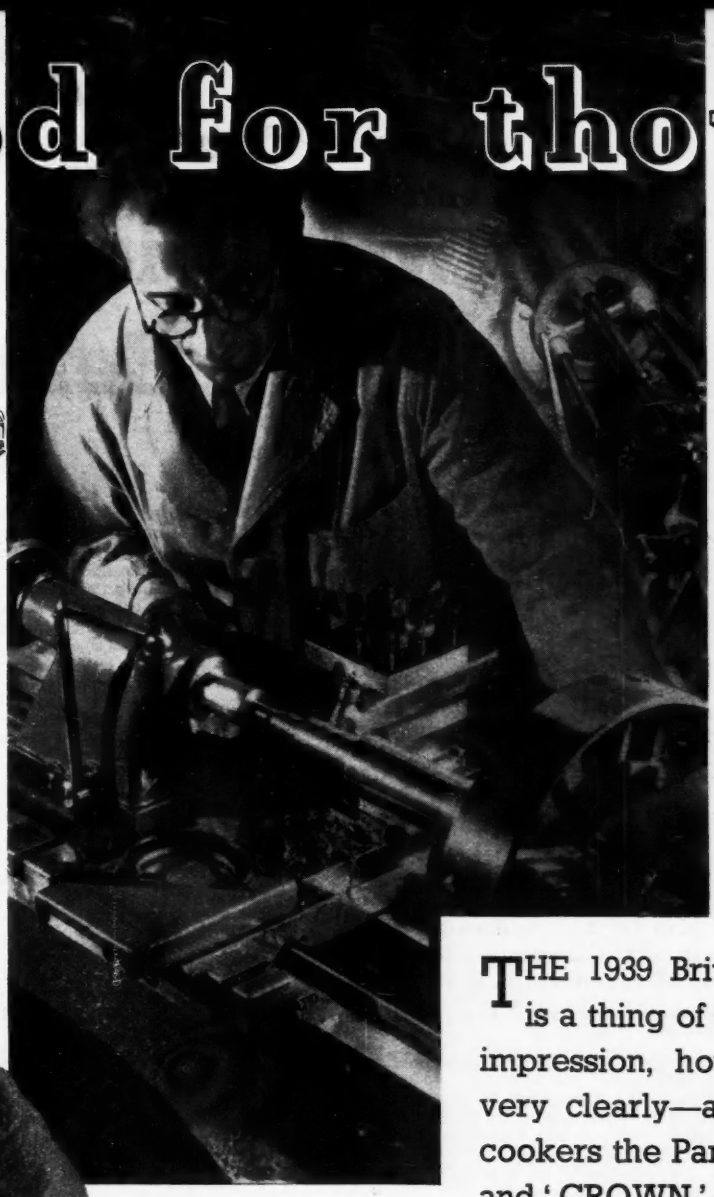
The hearing was adjourned till April 13 or 14.

"Punch" Spring Number

Punch has this year embarked upon a new and welcome venture—a Spring Number. This Spring Number is at once like and unlike the famous Summer Numbers and Almanacks—like in its inclusion of 16 full-page colour-plates, unlike in that it incorporates all the features of an ordinary weekly issue. It is, in fact, the issue for March 29 nearly doubled in size and made more than doubly attractive by its admirable colour-work. The cover, an impression of Territorials in camp, reflects the spirit of the times, and the reproduction of several cartoons bearing on Germany and Czecho-Slovakia, shows that *Punch* has long been alive to Hitler's threat to South-East Europe; but in general the Number affords a pleasant relief from harassing thoughts of Crises and Emergencies. "Pont," "Anton," Ernest Shepard, "Fougasse," Frank Reynolds, and many others are in excellent form, and the general level of the numerous articles and sketches is very high. Altogether, readers of the *Punch* Spring Number will find that, despite the depressing international outlook, "cheerfulness *will* keep breaking through."

Food for thought





THE 1939 British Industries Fair is a thing of the past. A lasting impression, however, stands out very clearly—among modern gas cookers the Parkinson 'RENOWN' and 'CROWN' are supreme. Pride of craftsmanship has produced this sound construction, combined with beauty in appearance and perfect cooking performance.

PARKINSON

New Service Centres

Recently

Oxford, Selsdon,

IMPOSING EXTERIOR OF THE NEW OXFORD GAS SHOWROOMS.

"Therm House," the Oxford and District Gas Company's new showrooms, was opened on March 16. The planning and equipping of the premises was part of the Company's policy to make every one of its consumers, however small his use of gas, feel at home.

"THEY are your showrooms," says the Company, in effect, to the population of Oxford, "and they are here to enable you to see the most up-to-date ways of using gas and to get the utmost value out of your gas appliances. Visit the showrooms whenever you feel inclined. You need not buy—but you will always have a warm welcome."

Therm House is a three-storeyed, double-fronted Clipsham stone-faced building. Over the two large display windows, which are framed in a delightful combination of bronze and aluminium, Mr. Therm, cheerful symbol of the comfort gas stands for, is used as a wrought-iron decoration to the balconies to the first floor windows.

In addition to the large windows to right and left of the entrance, which will be used for general displays, there is a small window in which special displays will be featured. Inside, the spacious ground floor showroom, which is panelled with veneered oak, banded with burr elm, and floored with rubber tiles, is given up to an exhibition of the latest appliances.

What will delight the discerning housewife's eye most, however, will be the model kitchen and bathroom, with their delicate colour schemes of apple-green and cream, their gleaming tiles and clean-as-a-new-pin floors. The kitchen contains a kitchen cabinet, cooker, refrigerator, washing machine, clothes drying and airing cabinet, a gas iron, and, above the modern sink, an automatic gas water heater. The bath is supplied from an instantaneous gas heater, while a smaller model serves the hand basin.

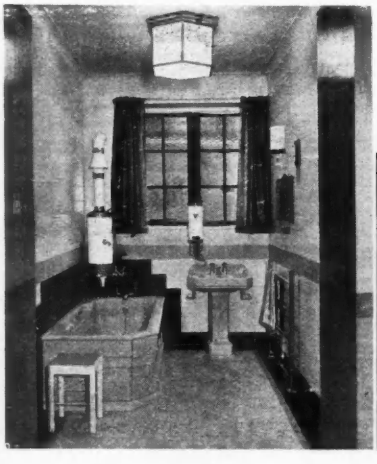
At the further end of the main showrooms is the cashiers' counter for the payment of accounts and for general enquiries. A decorative door on the left of the counter leads to a fine demonstration and film theatre, seating an audience of 200 persons. Here, on the raised platform, will be staged cookery demonstrations, while from time to time showings of special films will be given. The flooring to this room is of polished oak blocks,

Spacious Interior of the Oxford Premises.

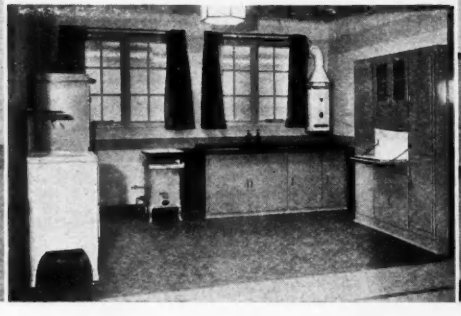
and the decorative scheme is cheerful and bright, the seating being particularly gay in colour.

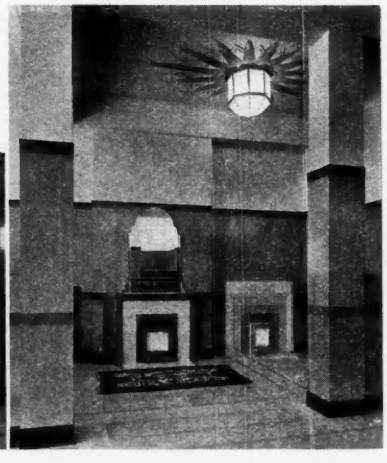
The general lighting in the main showrooms and demonstration theatre is by Sugg's ventilating ceiling lamps. Each lamp is set in a handsome coloured radiating surround. Subsidiary lighting by modern wall brackets by Evered's is an attractive feature.

The basement is set apart for a comprehensive display of large-scale cooking apparatus such as is now used in the vast majority of hotels, restaurants, hospitals, colleges, schools, and other large



Here are three more views of the Oxford premises—a model bathroom and kitchen, both fully equipped with up-to-date gas appliances, and an attractive gas fire setting in the main showroom.





Opened for the Industry

and Dunfermline

Pleasing Exterior at Dunfermline.

The Dunfermline Corporation Gas Department's new showrooms and offices in Canmore Street, to the opening of which we referred in the "JOURNAL" recently, have attracted much attention locally.

buildings. There is, however, one special display in this section which will particularly interest the householder. This is a corner devoted to an arrangement of domestic heating apparatus. There is an automatic gas-fired central heating boiler and a coke-fired boiler for hot water supply with alternative gas circulator, together with a gas-ignited smokeless coke fire that is proving so popular. Adjoining this showroom are two large store rooms, which have their own goods entrance, and the boiler room, which contains the heating apparatus for warming the whole building.

The upper floors of Therm House are designed as offices, while the caretaker's flat occupies a part of the top floor. On the first floor are the Company's own new offices, with a handsome Board Room panelled in veneered oak with burr elm veneer bands,

A View Across the Dunfermline Showrooms.

rooms for the Manager and Chief Cashier, and large and airy general office comfortably cork floored.

Two lifts serve the building. One, a goods lift for heavy apparatus, runs between the basement and the main showroom; the other, a passenger lift, serves the office floors.

The architect of Therm House is Mr. Gilbert T. Gardner, F.R.I.B.A., of Oxford, and the general contractors for the building were Messrs. T. H. Kingerlee & Sons, Ltd., also of Oxford.

Their work, and that of the Oxford Gas Company, has resulted in a notable addition to the City's commercial buildings.

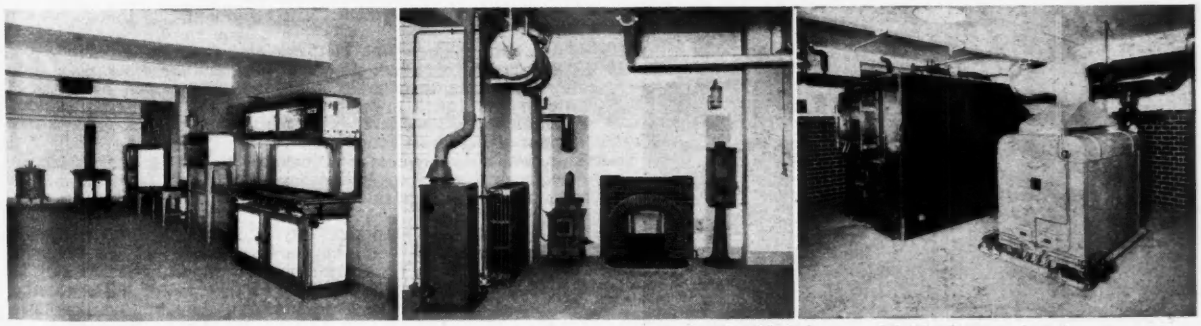
THE frontage of the building, extending over 40 ft., is built of Darney stone, while the surrounding walls are of brick and concrete finished in plain cement and covered with petrumite stone paint to harmonize with the front. The bronze-framed windows are of the "open" type, providing a clear view of the whole interior, while the front wall of the upper floor is set back about 4 ft., to form a balcony on which lamps for flood-lighting the upper storey are concealed.

On entering, one is immediately impressed by the spacious appearance and the extremely pleasing scheme of decoration. On the right three fires, complete with appropriate mantelpieces are displayed; to the left, on a background of pale green glass, is a comprehensive water heating display, and in front is the cashier's counter with general offices and Manager's room behind.

The showrooms cover an area of 1,270 sq.ft., the flooring is of polished oak, and the walls are panelled in Austrian oak, the whole providing an effective background for the various gas appliances displayed.

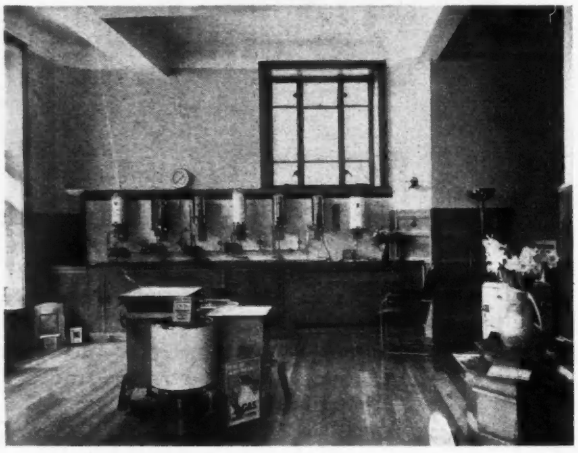
From the showrooms a staircase having a "pillar-box red" handrail, together with a Waygood-Otis passenger lift, lead to the upper floor, where are the demonstration theatre, an auxiliary showroom, store rooms, &c. The demonstration theatre is particularly effective. It covers an area of 1,045 sq.ft., having at the end a stage flanked on one side by a well-equipped kitchen for the use of the demonstrator's assistant, and on the other by a retiring room for the demonstrator. The background of the stage is lined with primrose-coloured vitrolite glass with a black border, against which are placed cupboards, monel metal sink, refrigerator, and instantaneous water heater for use during demonstrations. The woodwork is of Oregon pine, finished in a rich stain with flat varnish, while the floor is tiered, to provide a complete view of the stage from all parts of the "house." Seating for 100 people is provided by "Pel" nesting chairs finished in olive green, and the window curtains are to match.

The auxiliary showroom on this floor is screened off by a folding partition which, if required, can be opened to provide additional seating accommodation for cookery demonstrations.



FURTHER VIEWS FROM OXFORD.—*Left.—A Display of Large-Scale Apparatus. Centre.—A Gas and Coke Corner. Right.—Central Heating Installation.*

Incidentally, this extra accommodation was required on two occasions during the opening week, when a series of cookery demonstrations proved a great attraction, and were attended by over 900 ladies, many of whom expressed their appreciation of the lectures and the comfort in which they were given.



A Comprehensive Water Heating Display at Dunfermline.

The whole of the work was carried out to plans prepared by Mr. R. H. Motion, L.R.I.B.A., of Dunfermline, in collaboration with Mr. James Campbell (Engineer and Manager of the Gas Department).

We referred in the "JOURNAL" not long ago—at the time of the opening of their new showrooms at Coulsdon—to the Croydon Gas Company's well founded policy of following up the development of their outlying areas with the erection of up-to-date service centres.

ANOTHER instance of this policy is to be found at Selsdon—an area which a few years ago consisted to a large extent of green fields, but now houses some four thousand gas consumers, grouped round a rapidly growing shopping centre.

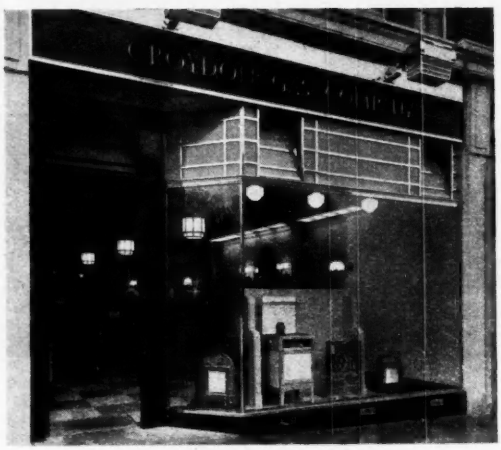
The showroom, which was opened last week, provides a further example of the kind which, set in a more or less stereotyped block of shops, has to rely for its appeal to the public upon a pleasing window and attractively laid out interior. That the premises have succeeded in this object will be seen from from the accompanying photographs. The treatment of the exterior is neat and business-like, with stainless steel window fittings and polished black framing, the Company's name also being set in stainless steel lettering on a black background. Two strip lanterns above the window serve to illuminate the fascia, while ventilators above and below the window maintain comfortable conditions in the showroom as well as preventing the steaming up of the glass.

The interior is particularly pleasing for a small showroom, with a bright colour scheme enhanced by a rubber block floor of alternating green and cream and white and black "streaked" squares. Two typical modern fireplace settings show examples of the latest gas and coke fires, while a selection of enamelled cookers is arranged in staggered formation along the opposite wall. A gadget table occupies the centre of the floor, fitted with handy shelves for leaflets and a number of plug-in points for appliances. On either side of this table are settings for gas fires. Independent wooden backings are utilized to display gas fires in other parts of the showroom, this providing an effective method of showing fires in positions away from a wall or other permanent setting. These backings are in walnut to match the other woodwork in the showroom and are cut away to take any ordinary gas fire.

The water heating display is striking, eight different types of heater being arranged in a group with common discharge trough and concealed lighting above. Again the ingenious little semi-transparent green blocks (known as "Catalin" blocks), which we mentioned at the Coulsdon showrooms, have been used as "labels" for the different taps, while larger ones give brief details of the heater concerned.

The counter, beautifully finished in polished walnut, occupies a far corner of the showroom, behind which is a cabinet of wood to match, containing pigeon-holes for the leaflets concerning the various appliances displayed. The main lighting of the showroom is by means of a series of fine central lanterns, in bronze finish, with remote control, supported by attractive wall brackets and rows of concealed lights above each of the longer walls.

Beyond the showroom, on the same level, is a comfortable demonstration room, capable of seating about eighty persons. The decoration scheme is similar to that of the showroom, the chairs being of the tubular nesting type with green seats. A large laylight permits plenty of illumination during the daytime, while artificial light is provided by chromium-plated pendant fittings and wall brackets. The demonstrator's platform is finished in a pleasing shade of deep cream with the cabinets and cupboards to match. Cooker, water heater over the sink, and built-in refrigerator complete the equipment. The room is heated by two modern gas radiators.



Exterior of the Selsdon Premises.

Pleasing Interior at Selsdon.

On either side of the platform are inlaid walnut doors—one giving access to a small store cupboard, and the other, via a short flight of stairs, to a larger store-room. By reason of the sharp rise in the ground towards the rear of the premises, this store-room is on the same level as the yard behind the showrooms, with a door giving direct access thereto.

Above the showroom is a commodious flat for the resident inspector, with entrances both from the back and from the interior. The shops on either side of the showroom are part of the Company's property.

There was no official ceremony in connexion with the opening of the Selsdon showrooms, but the occasion was marked locally by a series of cookery demonstrations throughout the first week. Invitations announcing the opening of the new premises, together with particulars of the demonstrations, were sent to consumers in the neighbourhood, and excellent attendances were recorded at all sessions, people having to be regretfully turned away on several occasions.

Fundamental Combustion Problems

At a Conference held on March 14 by the Institute of Petroleum an important series of Papers was read discussing the precautions necessary in order to avoid explosion risks in industry, the automatic detecting of inflammable gases, the psychological effect of toxic vapour, &c. ; and at an evening session a Lecture was given on the detection of toxic gases in industry by Dr. R. B. Vallander, of the Chemical Defence Research Station, Porton.

At the opening of the morning session a Paper was read by Professor Townend (the Livesey Professor) and Dr. Maccormac, the first part of which dealt with the recent state of knowledge in regard to spontaneous ignition phenomena, and a second with inflammability limits over wide temperature and pressure ranges. Although there is a considerable accumulation of data in the literature in regard to "limits of inflammability" and so-called "ignition points," rarely can observations made in experiments under one set of conditions be accepted as indicative of the safety conditions in any other circumstances. A table was presented summarizing the known approximate spontaneous ignition temperatures at atmospheric pressure, but also making clear the importance of pressure or change in mixture composition in inducing the spontaneous ignition of many combustible materials in a temperature range 300°-400° C. by a process involving the prior formation of a "cool" flame. It was pointed out that in these days, with the increasing use in industry of inflammable gases or vapours at elevated temperatures and pressures, it is just as important to know the minimum ignition pressure at any particular temperature as to know the ignition temperature at atmospheric pressure, which is an accidental happening.

A summary was also presented of the present state of knowledge of the limits of inflammability and combustibles in air over wide variations of conditions. While inflammable ranges are invariably widened at both limits by increasing temperature, the effect of pressure varied with the combustible concerned. With those materials capable of giving rise to "cool" flames, a knowledge of the part played by both temperature and pressure was most important. For, as originally shown by White in 1927, with these materials two independent inflammability ranges exist, one for normal flames and another for "cool" flames; at certain pressures these ranges are separated by a range of non-inflammable mixtures. Under atmospheric conditions such separate ranges are only found with materials as the ethers in air, or higher hydrocarbons in oxygen; under conditions of elevated temperature and pressure, however, they are of great importance. On the attainment of critical pressures depending on the explosive medium, "cool" flames may give rise to normal ignition by a process involving essentially the initiation of a second flame behind the "cool" flame front.

From the practical point of view, the initiation of a "cool" flame in, say, an ether-air mixture might not of itself provide any great danger; it is hardly visible, travelling with a velocity of merely 12 metres per minute, and its maximum temperature not exceeding 400° C. A danger exists, however, from the fact that a cool flame may travel unobserved over a considerable distance and may act as a source of ignition, giving rise to a true flame with a subsequent violent explosion, should it pass into a sufficiently explosive mixture.

What is known of the chemical processes involved in such flames was also discussed.

In the February number of the *Journal of the Chemical Society* three Papers on researches into fundamental combustion problems appeared, the Authors of which were Mr. M. S. Hsieh and Professor Townend; these embodied the results of investigations which were carried out at the Imperial College, London. The first dealt with a further study of the "green" flames observed a few years ago by Townend and Chamberlain when studying the explosion of ether-air mixtures at reduced pressures. It has now been found that these green flames are not peculiar to ether-air mixtures, but are also observed with other hydrocarbons under suitable conditions of mixture composition and reduced pressure. It is interesting to note that the flame spectrum of a hydrocarbon burning in air usually reveals band systems which are attributable to the emission from such molecules as C_2, CH, OH, and HCO, and it has now been established by spectrographic examination that the "green" flames referred to are attributable to the emission of the C_2 (Swan) bands which apparently dominate the visible emission under the experimental conditions specified. The Authors mentioned that the same emission is probably responsible for the greenish tinge frequently observed in the inner cone of a Bunsen flame.

The succeeding Papers related to the mechanism by which "cool" flames may give rise to normal flames, and it has been established that the interesting phenomenon of a two-stage ignition induced by "cool" flames, a discovery of the last few years, involves the same processes, whether arising spontaneously at elevated temperatures, or whether brought about artificially by means of hot wire ignition in cold media, but at much higher pressures. This has provided a new means of attack on the precise chemical mechanisms involved.

Finally, the limits of inflammability of higher hydrocarbons in air and oxygen have been determined at pressures up to 20 atmospheres, and it has been demonstrated for the first time how, at critical pressures dependent upon the number of carbon atoms in the hydrocarbon concerned, "cool" flame ranges may be located in each case. These ranges, in turn, cause an abrupt widening of the normal flame ranges.

As pointed out in Professor Townend's Inaugural Lecture at Leeds University ("JOURNAL" for Nov. 16, 1938, p. 558), whereas the normal flame ranges centre upon the theoretical mixtures for complete combustion, those for "cool" flames centre upon the mixtures most reactive in slow combustion, and usually having a combustible-oxygen ratio of about 1 : 1 or 2 : 1. While these ranges with higher hydrocarbons are widely separated (*e.g.*, with hexane in air: theoretical mixture = 2·1%; 1 : 1 mixture = 17·5%), a more difficult problem arises in searching the possibility of the formation of cool flames with the simpler combustibles present in coal gas, because the two ranges usually overlap.

Women's Gas Council

Manchester Branch Report

The Annual Report of the Manchester Branch of the W.G.C. for the year ended March, 1939, states that the third anniversary of the formation of the Branch marks the end of a year of progress and development. New activities have been started and fresh contracts made, and, in addition, much useful and educational work has been done. All the meetings have been well attended and marked enthusiasm has been shown by all members.

The Branch has now a fully paid-up membership of 1,015, and a number of new applications for membership have come in since the list was temporarily closed for the Annual Balance. It is gratifying to the Branch once again to have the honour and privilege of having the Lady Mayoress of Manchester (Miss Hodsman) as President.

The Branch has received excellent Press publicity during the past year, notices of activities and meetings having appeared regularly in the various newspapers

At the Annual Meeting on March 30, the Lady Mayoress presided over an attendance of 350 members, and Miss K. M. Halpin addressed the gathering.

Manchester District Association of Gas Engineers

Presidential Address

OF

H. SINGLETON, M.I.Mech.E.,

Engineer and Manager, Huddersfield Corporation Gas Department.

(Concluded from p. 878 of last week's "JOURNAL.")

Delivered at the Annual Meeting of the Association held in Manchester on March 24.

Area of Supply.

A policy of increasing the area to be administered by the Gas Department has been steadily pursued, and in 1919 the Undertakings of the Longwood and Slaithwaite Company

Fig. 5

and the Kirkheaton, Dalton, and Lepton Gas Company were purchased, which resulted in the dismantling of the latter works and the continued operation of the Longwood Works. Agreements have been recently made to purchase the Undertakings of the Honley Council, the Holmfirth Gas Company, the New Mill Gas Company, the Thurstonland Council, and the Netherthong Gas Company. All these works are to be closed as manufacturing stations, and their holders are to be supplied through high-pressure linking mains from the Huddersfield Works. In all cases the acquisitions have been and are to be accompanied by substantial reductions in the prices charged for gas in the added areas. In 1919 the area supplied was 11,688 acres, and the population 105,560. At the present time the acreage supplied is 23,388 and the population 150,015, and with the proposed new areas added the totals will be 45,053 acres and 172,211 population. In fig. 5 the gas area in 1918 is shown shaded; area added in 1919 is shown hatched, and the new gas area is shown plain.

Of the total gas sold 80% is produced at the Huddersfield Works and is distributed through one 36-in. and two 24-in. station governors. At the Longwood Works, where the remainder of the gas is manufactured, the district is served by three 12-in. governors, and compressors serve the high pressure main feeding two holders at Slaithwaite, three miles away. On this high-pressure main is provided a reducing governor feeding a low-pressure distributing main midway between Longwood and Slaithwaite. The Huddersfield Works and the Longwood Works supply their own areas, the Huddersfield Works being horizontal retort carbonization and the Longwood being continuous vertical retorts. The maintenance of both the works as manufacturing stations is of great assistance in coke distribution, while the consequent de-centralization is useful in connexion with A.R.P.

The main mileage to-day is 351, and the number of consumers has just passed the 50,000 mark. The consumption per consumer in 1919 was 27,246 cu.ft. per annum, and the consumption to-day per consumer is 24,754 cu.ft. per annum. It will be seen that while the total output of gas has increased the consumption per consumer has decreased considerably, and this is due in the main to the loss of domestic and industrial lighting. One serious contributing factor to this reduced consumption per consumer is slum-clearance. Large blocks of property have been demolished where the tenants were both lighting and cooking consumers, and this population is re-housed on new sites where gas is not now installed for lighting, and many have been tempted to use the product of our competitor for cooking. This re-housing of part of the population of a town has hit gas in many ways—*i.e.*, the capital expenditure on mains, services, and meters, and appliance fixing no longer earns any revenue, and additional capital expenditure of the same nature on the new sites has been necessary from which only a portion of the previous revenue can be expected. On the other hand, new lighting business has been handed to our competitors who have not suffered much from demolition of existing property. Low-pressure trunk mains have been extended radiating in six directions to supply these more or less isolated new communities which have been built away from the centre of the Borough.

Reduction of Sulphur Compounds.

Much has been written concerning the desirability of removing sulphur compounds from coal gas. I am one of those who regard this form of gas purification as very necessary. If it can be accomplished at a reasonably small cost per 1,000 cu.ft. it is our duty to the consumers to reduce these sulphur compounds to the lowest economic quantity. A reduction in corrosion effect on high efficiency water heating appliances would be one great improvement which this reduction of sulphur compounds would effect, and the greater use of flueless heaters with their high efficiency in competition would also result. Plant for the reduction of sulphur compounds has been in operation at our Longwood Works for three years and a description of its operation may be of interest.

Fig. 6 is a photograph of the plant, which is working on continuous vertical retort gas only. A flow diagram is shown in fig. 7.

The method of operation is as follows: Rich oil is drawn from the gas scrubber A by the pump K, which it delivers through the multi-tubular heat exchanger D where it is heated by the stripped oil leaving the still which is at about 100° C. The rich oil is further preheated by passing through heat exchanger E where the vapours and steam from the still F are employed. The rich oil then enters still F, which is filled with rings. An excess of low-pressure steam together with the exhaust from the steam pumps is passed into the still to perform the stripping. The stripped oil leaves the still through the heat exchanger D, passing into C where any condensed water is separated and finally cooled in the pipe rack condenser by water before re-entering the scrubber. The

vapours pass into the fractionating column G, where the lightest fractions—*i.e.*, those highest in sulphur compounds—are finally cooled in the condenser H and passed after separation of any condensed water into the storage tank J. The temperature control of this column G is important in determining the amount of benzole to be returned to the gas in

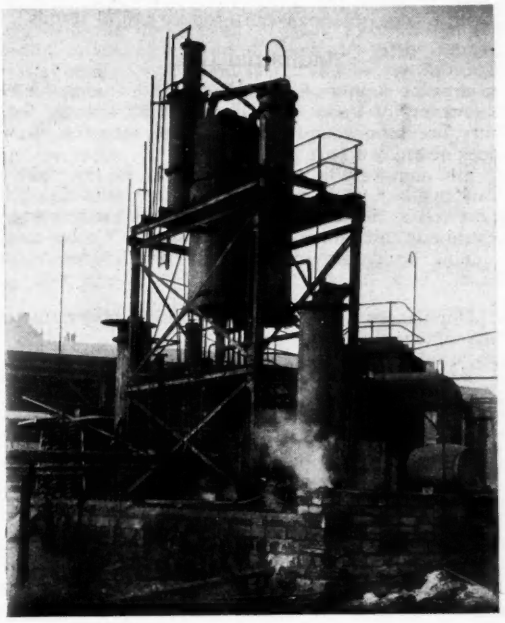


Fig. 6.

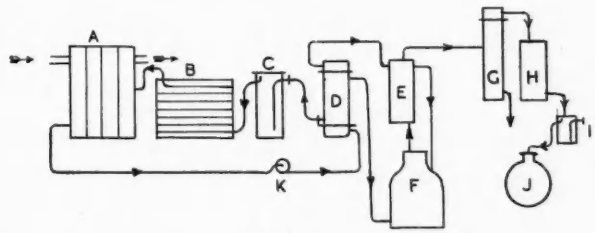


Fig. 7.

A. Static gas scrubber.
B. Rack oil cooler (water cooled).
C. Water separator.
D. Oil to oil preheater.
E. Vapour to oil preheater.
F. Still.
G. Fractionating column.
H. Benzole condenser.
I. Water separator.
J. Benzole store.
K. Oil pump.

the case of a partial strip. In the plant described it was not desired to strip more than 1·5 gallons of benzole per ton of coal, and therefore the heavier fraction from column G was returned to the gas scrubber along with the stripped wash oil. This heavier returned fraction is very low in sulphur.

The fractionating column is unnecessary in a plant which is required to produce a complete benzole stripping. It will be seen, therefore, that the carbon bisulphide is concentrated in the smaller production of benzole. The still is elevated so that the stripped oil may have head enough to return through the heat exchanger and cooler to the scrubber by gravity.

The benzole which is returned to the gas scrubber has a specific gravity of 0·831, a total sulphur content of 0·46%, and has the following distillation range:

%	5	17	30	40	47	55	61	70
°C.	90	100	110	120	130	140	150	160

The benzole which is conveyed to the storage tank J has a total sulphur content of 1·17%.

Rate of gas, 30,000 cu.ft. (vertical retorts) per hour.
Benzole per ton, 1·5 gall.
Reduction of calorific value of 18 B.Th.U. between inlet and outlet.

Steam consumption	15	lb. per 1,000 cu.ft.
Water ,, ...	6	gall. ,, ,,
Labour and maintenance ..	0·1d.	,, ,,
Current used	0·11	B.o.T. units per 1,000 cu.ft.
Sulphur compound, inlet ..	20	grains
,, ,, ,, outlet ..	8	,,
60% reduction.		
Oil circulation	650	gall. per hour
Steam	3·0d.	per ton of coal
Water	2·0d.	,, ,,
Labour and maintenance ..	1·5d.	,, ,,
Current	1·6d.	,, ,,
	8·1d.	
Interest and sinking fund charge..	2·4d.	
	10·5d.	
1¼ gall. benzole at 9d.	1s. 1¼d.	

In 1911 I assisted in certain experiments at the Sheffield Gas Company's test plant where purified coal gas containing 36 grains of sulphur compounds was passed through a retort filled with broken bricks. The retort and bricks were heated to a temperature of about 1,000° C. and the sulphur compounds were reduced to about 14 grains per 1,000 cu.ft., but H_2S was produced, necessitating further purification by iron oxide. When the bricks were withdrawn they were found to be coated with a fine deposit of carbon. About the same time the late Dr. Carpenter was working out his catalytic process known as the "purification of gas by heat."

During the time when inclined retorts were exclusively employed for gas making at Huddersfield the sulphur compounds were never higher than 14 grains and often as low as 11 grains per 100 cu.ft., although low sulphur coals were not used.

On the horizontal stream of gas on which benzole extraction to the extent of only 1 gallon per ton of coal is carried out the sulphur compounds are reduced by oil washing only from 29·5 grains to 26·4 grains per 100 cu.ft. These are the average figures from a large number of tests.

Gas Charges.

The question of gas charges is always an interesting one, and the Author has considered many two-part and multi-part tariffs all designed for the purpose of a fair distribution of fixed charges and to improve the selling and competitive cost of gas for domestic and industrial business. One is obliged to admit that our electrical friends stole a march on us when they launched (at a time when their sales were increasing) their rateable value *plus* low commodity charge scales, for it must be plain to all that a consumer enjoying both gas and electrical services will not entertain paying two rateable value fixed charges. An alternative is therefore needed to stimulate and increase gas sales. Where gas sales are increasing it is a much simpler matter to offer tariffs that are attractive, but where the sales are stationary or declining an attractive tariff to large consumers can only be produced at the expense of the smaller consumers. The domestic consumers are still the "bread and butter" of the Industry. Where industrial consumption is increasing rapidly owing to a low commodity charge, one can visualize a critical state arising where an increased fixed charge must be called for, particularly if domestic business is not retained. The scale adopted by the Huddersfield Gas Department, which has proved highly successful, is as follows. (Our scale contains a concealed fixed charge.)

Domestic Consumers, by Ordinary Meter.

Per Quarter.

First 1,000 cu.ft.	at 4s. 0d.	per 1,000 cu.ft.
Next 2,000 ,,	at 3s. 6d.	,, ,,
Next 2,000 ,,	at 2s. 8d.	,, ,,
Over 5,000 ,,	at 2s. 0d.	,, ,,

(No meter rents.)

Prepayment Meters (Five Collections per Annum).

(Set to give 20 cu.ft. per penny.)

Rebates—
½d. in 1s. on first 8s.
2 d. in 1s. on next 8s.
5½d. in 1s. on remainder

Non-Domestic Consumers (per Quarter).

(No meter rents.)

Below 100,000 cu.ft.—
20% of consumption at 3s. 5d. per 1,000 cu.ft. (with a minimum of 10,000 cu.ft. a 3s. 5d.)
Remainder at 2s. per 1,000 cu.ft.

Between 100,000 and 250,000 cu.ft.—
20% of consumption at 3s. 5d. per 1,000 cu.ft. Remainder at 1s. 10d. per 1,000 cu.ft.

Between 250,000 cu.ft. and 500,000 cu.ft.—
50,000 cu.ft. at 3s. 5d. per 1,000 cu.ft. .. Remainder at 1s. 8d. per 1,000 cu.ft.

Between 500,000 cu.ft. and 800,000 cu.ft.—
50,000 cu.ft. at 3s. 5d. per 1,000 cu.ft. .. Remainder at 1s. 7d. per 1,000 cu.ft.

All the above prices are subject to 5% discount for payment within one month.

Over 800,000 cu.ft.—

	Cu.Ft.	Cu.Ft.	
First	50,000 at 3s. 5d. per	1,000	*Less* 5% for payment within one month
Next	750,000 at 1s. 7d.	,,	,, ,, ,, ,, ,,
Next	450,000 at 1s. 5d.	,,	,, ,, ,, ,, ,,
Next	1,750,000 at 1s. 3d.	,,	Net
All over	3,000,000 at 1s. 2d.	,,	Net

Criticism of the scale which I make is that it does not assist in obtaining domestic central heating business, and it is a mistake not to charge meter rents.

Since the operation of the scales non-domestic sales have increased by 70,000,000 cu.ft. per annum.

The Department carries out the designing and produces the specifications for all Departments of the Corporation for central heating and kitchen and canteen work. This is a useful service to the various Departments, and keeps the Gas Department in touch with every possibility of selling its fuel and appliances. As most of these schemes are for submission, of course, to the Government Departments for grant they must be competitive where gas or coke is recommended.

Salesmanship.

Salesmanship in the Gas Industry is a subject which to-day is receiving increasing attention. "Any salesman can sell to a customer what he or she calls for, but it requires an expert salesman to sell something to a customer which he or she does not require." This may be good salesmanship, but I contend that it is a kind of salesmanship which is generally harmful to a good business connexion. To create confidence is of more value than the mere ability to snap up an order. The confidence of the public is something which may take years to cultivate, and a forceful sale of an unnecessary appliance may destroy it in a few minutes. Only by a wise choice of reliable and efficient appliances displayed and demonstrated honestly can that confidence be maintained. A salesman needs to be continually fed with all the details of developments concerning his own wares as well as those of his competitors in order to be able to advise the customer with confidence. The salesman's knowledge of what the public require is invaluable to the person responsible for replenishing stores and in the choice of improved models of appliances.

Should a showroom be run for profit? Certainly not as a profit-making section of a gas undertaking or as a grocer's shop is carried on. A gas salesman's business is to sell gas and service, but he cannot take an order for a given quantity of gas; he must needs sell appliances which consume gas; but even so he must not think in terms of ironmongery sales, but in the serviceable sale of gas. Much controversy has taken place as to which is the best policy to pursue in the matter of appliance supplies—*i.e.*, whether to sell only, to sell and hire purchase only, or whether to sell, hire purchase, and simple hire. In Huddersfield we were in this difficult position with the knowledge that our competitors would let out any appliance on simple hire, and to-day we simple hire one type and size of wash boiler, one type of griller, one type of sink water heater, one kind of fire in four sizes, six sizes of black cookers, and two kinds of all-enamelled cookers. We were one of the very first Undertakings to simple hire enamelled cookers in 1930, and at the present time we have 8,000 out on simple hire, the revenue for the hire of which amounts to £6,400 per annum, while the shop maintenance cost is £3,600 annually. The number of additional enamelled cookers purchased for hiring last year was 740. The simple hiring of these enamelled cookers has been of the very greatest competitive value to us in retaining the cooker load. Enamelled cookers are, of course, much more expensive to renovate, but we have been agreeably surprised at the small amount of chipping of the enamel which takes place. Much criticism has been levelled at the black cooker, but I am sorry to say there is still a large body of consumers who cannot or will not pay the higher price charged for the hire of an enamelled cooker, and therefore we are compelled to continue hiring out a fairly large quantity of black cookers. The number of black cookers still out on hire is 25,500 and the annual shop maintenance cost is £2,650. We also hire purchase or sell outright any type of sound appliance, and with these facilities for supplying apparatus and a competitive gas tariff a good salesman can produce useful results.

Industrial Gas.

The area of supply of the Huddersfield Undertaking contains a variety of trades, and, like all other units of the Gas Industry, we have found that there are very few in which gas does not play a part.

We are nominally a textile area, and in this sphere, in spite of the loss of a good deal of the industrial lighting load, we sell an increasing quantity of gas for singeing, gassing, steaming, and other allied processes. We have several outstanding businesses, some even of world-wide reputation, such as:

Hopkinsons, Ltd., the valve and boiler mounting manufacturers.
David Browns, Ltd., the gear cutting specialists.
British Dyestuffs Corporation (branch of I.C.I.), dyestuffs and chemical manufacturers.
Thos. Broadbent & Sons, Ltd., hydro extractors and crane makers.
Brook Motors, Ltd., electric motor manufacturers.
L. B. Holliday & Co., Ltd., dyestuffs and chemical manufacturers.

Gas is used in every department at Messrs. Hopkinsons, Ltd., in the steel foundry, iron foundry, brass foundry, platnum foundry, iron and steel testing and brass testing shop, electrical switchboard and control department, oil centrifuge department, pressure gauge department, laboratory, and canteen. Their annual consumption is 32,000,000 cu.ft. and is increasing.

Messrs. David Browns and Thos. Broadbent both use gas in many of their departments, besides the heavy canteen requirements. Chemical vat heating is affording us an increased number of installations ranging from 80 to 800 cu.ft. per hour.

The New Technical College extension building nearing completion contains the following equipment.

Three Cochran "Sinuflo" gas-fired boilers, total output 4,200,000 B.Th.U. per hour; 866 bunsen or ring points; 10 Ascot water heaters; one 3 ft. by 3 ft. Cox gas-fired bakers' oven; 1 "Equator" water heater; 8 "Thermspray" steam boilers; 1 gas-fired pottery kiln; 24 boiling rings; 4 steam ovens and stills; and 5 laboratory furnaces.

The new Trolley Vehicle Depôt with a floor area of 90,000 sq.ft. is heated by a plenum system, the hot air being produced by hot water heated batteries of gilled copper tube. Two gas-fired Cochran boilers with a total output of 5,200,000 B.Th.U. per hour supply the hot water. The whole of this installation was designed and is being supplied and fixed by the Gas Department direct. The administration block, stores, and canteen are separately heated by hot water radiators supplied from a gas-fired boiler with an output of 500,000 B.Th.U. per hour.

Since 1934 our purely industrial load has increased at the net rate of 14,000,000 cu.ft. per annum.

Street Lighting.

The public are probably paying more attention to street lighting at the present time than at any time since public lighting was introduced. This is no doubt due to the ever-increasing number of motor vehicles on the roads and the high death and accident rate which accompanies this volume of traffic. Whenever a fatality occurs at night on a street which is not well lighted adverse criticism from both the coroner and the jury is made to the lighting authority responsible, no matter whether the motorist or the pedestrian is to blame for lack of proper care. The Joint Lighting Committee of The Institution of Gas Engineers is doing splendid work in connexion with street lighting and is endeavouring

to stimulate a greater interest in gas street lighting throughout the country.

It seems to me that a useful introduction to improvement in gas lighting would be brought about by the collection by the District Associations or Commercial Sections of full particulars of successful installations, giving costs of installation, mounting heights, type of lamp, lumen output, class of lighting, gas consumption, and maintenance costs. Experiments are costly, and the distribution of such information may prevent duplication of tests and eliminate many unsatisfactory installations. I am sure this would be greatly to the benefit of those undertakings which are not staffed for handling experimental lighting. Such a collection of information may be used to bring about some co-ordination of effort by adjoining authorities in the lighting of the now unlit trunk roads. Our competitors are sparing no effort to capture the street lighting load, as it would very suitably fill up the valleys in their load chart, and thus they are offering current at very low rates. This lighting load may not be very profitable to gas undertakings, but from many angles it is worth retaining, and greater efforts will need to be made in the very near future if this is to be done. Our competitors are receiving a tremendous amount of assistance from the Lamp Manufacturers' Association, and this can be true of the gas lamp manufacturers if their help is sought. The Ministry of Transport report has done much to focus the attention of all who pay for light on this rather complex problem of road illumination.

The Council of the British Commercial Gas Association are to be congratulated on their attempt at reconstruction. The more frequent presentation of the District opinions to the Central Council has been needed for some time. By regular district meetings a closer co-operation in the work of the central body may very well be achieved. A certain amount of de-centralization also will greatly stimulate interest in the work of the B.C.G.A., the importance of which work cannot be over-estimated in these highly competitive times. The passing-on of the more local work to the districts concerned will undoubtedly improve the application of particular schemes, such as local group advertising in newspapers, by pamphlets, or by competitions, exhibitions, and public conferences.

TRADE NEWS

A Beautiful Production.

A colour booklet has been issued by the Parkinson Stove Company, Ltd., Stechford, illustrating the many advantages of the "Renown" Mark I and Mark II cookers. This booklet is a beautiful production, being bright and cheerful and in the very best taste.

Hot Water for A.R.P. Shelters.

It is not always possible to site first-aid posts near to a public gas service for the heating of large quantities of hot water necessary. Here "Calor Gas" comes in useful.

Many installations are being completed in different parts of the country where a stand-by service is advisable. The gas is delivered in handy 28 lb. cylinders by the regular "Calor" stockists who are supplying some 40,000 country homes throughout Great Britain. "Calor Gas" can be used for any purpose for which town gas is used and the "Calor" stockists can recommend suitable equipment for all purposes.

Cast-Iron Pipe Joints.

A handsome illustrated booklet dealing with cast-iron pipe joints has been published by the Staveley Coal and Iron Company, Ltd. The booklet does not pretend to describe or illustrate the multitude of joints, of all sorts and descriptions, for cast-iron pipes that have been devised during the long period through which these pipes have been in general use. It is, however, intended to be a guide for the use of those concerned in the selection of the most suitable type of joint to meet their particular circumstances. In this it succeeds admirably. All types of joint illustrated in this booklet (with the exception of "Victaulic" joints and Johnson couplings) are made by the Staveley Company.

A New Elevator Service.

Messrs. John Ingham & Sons, of Wakefield, manufacturers of every kind of riveted, welded, and pressed steel plate work, have established a new department specializing exclusively in the manufacture of elevator replacement buckets for gas-works. Mass production methods are employed, with the result that buckets of all types are made, not only with unvarying precision, but at a cost considerably lower than that which gas-works have been accustomed to pay in the past. Large stocks of materials are kept in reserve and quick delivery is assured. The opening of a department to specialize on the production of these buckets has, we are informed, already been more than justified, and extensions are being carried out as quickly as possible.

B.E.N. Patents, Ltd.

Mr. A. Ingram, until recently with Messrs. Ferodo, Ltd., has now been appointed Advertising Manager to Messrs. B.E.N. Patents, Ltd., of Hughenden Avenue, High Wycombe, Bucks. (Tel.; High Wycombe 1630). The well-known range of air compressors, spray paint plant, and garage equipment manufactured by the Company will be still further extended, and arrangements are in hand for opening a centrally situated London depôt where comprehensive stocks of complete machines and spare parts will be carried, and where demonstration facilities will be available. For the time being enquiries addressed either to High Wycombe or to their London Office, 7/8, Norfolk Street, Strand, W.C. 2 (Tel.: Temple Bar 7835), will have immediate attention.

"Hopkinsons'" Reducing Valves.

A coloured illustrated folder has been issued by Messrs. Hopkinsons, Ltd., Huddersfield. This deals with "Hopkinsons" reducing and surplus valves. It is stated that the relay-control reducing valves, "R" type, "SR" type, and "Metacentre" will reduce in a single-stage from boiler pressure to the required reduced pressure. It is claimed that these valves will meet the most exacting requirements under the most severe working conditions of pressure and temperature, and maintain a constant reduced pressure irrespective of fluctuations in the initial pressure or in the low-pressure demand. The relay-control type will pass a larger volume than a direct-acting valve of equal size, and a smaller valve can therefore be used with considerable economy in outlay.

New Asbestos Publicity Department.

A booklet which we have received from Turners Asbestos Cement Company (Branch of Turner & Newall, Ltd.) marks a new development in the publicity of this pioneer firm of asbestos-cement manufacturers. The booklet referred to is the first of a series which is to deal with the manner in which architects, builders, and others have solved difficult or unusual problems in constructional work by the use of this versatile material. Each of these handy little booklets will show how a difficulty has been overcome by the architect and manufacturer collaborating to produce a special component, or, in some cases, to utilize a standard product in an unusual way. Each booklet will be complete in itself and will contain a full description with all the technical data relevant to the problem with which it deals. The booklets are given reference numbers for classified filing, which is bound to increase their usefulness. As a handy guide to modern building practice, with examples drawn from the work of well-known architects, the series is well worth collecting. We are informed that copies will be sent post-free upon request to all interested.

Information on Water Gas Plant.

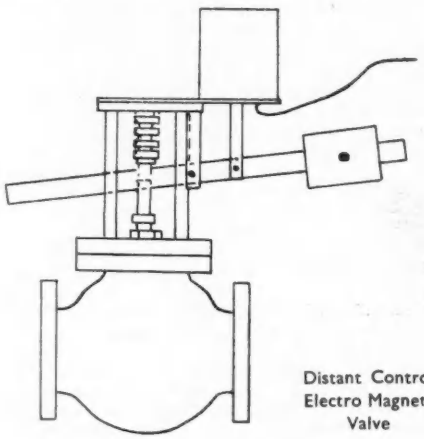
Messrs. Davison & Partner, Ltd., originally in London but now associated with the Power-Gas Corporation, Ltd., and Messrs. Ashmore, Benson, Pease, & Co., Ltd., of Stockton-on-Tees, have been designers, constructors, and operators of blue and carburetted water gas apparatus for over forty years. The practical experience gained during that time, coupled with the resources of their Associates, enables them to offer a service, which they claim, is second to none. The installations which they have supplied are to be found in gas-works and industrial concerns all over the world. The types of water gas plant made by the firm are dealt with in a thorough manner in a recently published illustrated booklet. These types range in size from 25,000 cu.ft. up to 8 million cu.ft. per generator per day. The generators may have static or wet or dry type mechanical grates with manual or mechanical fuel feed. Carburetting can be effected by standard combined carburetter and fixing chamber or by individual carburetter and superheater. The operation may be manual, hand-controlled hydraulic, automatic mechanical, automatic hydraulic, or automatic hydro-electrical-mechanical. Waste-heat boilers to provide steam for plant operation can be supplied, with blue and carburetted types, the boiler being of horizontal or vertical type to suit any particular circumstances.

A.R.P. Notes

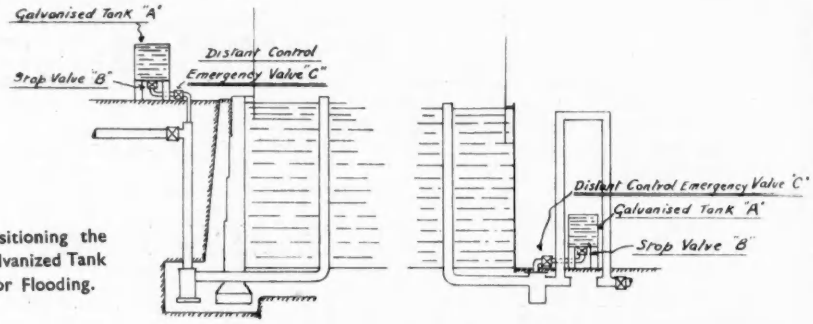
Emergency Flooding of Holder Mains.

We are indebted to Mr. J. E. Stanier, Deputy Engineer and Manager of the Stoke-on-Trent Gas Department, for the following notes and diagrams he has prepared on emergency method of flooding holder inlet and outlet mains in the event of a holder being damaged in an air raid.

The isolation of a damaged holder, he points out, is of vital importance; the most economical and simplest method of doing this is by flooding the inlet and outlet mains.



Distant Control Electro Magnetic Valve



Positioning the Galvanized Tank for Flooding.

A water supply directly coupled to the main for this purpose might result in overflowing to the other connecting mains. Moreover, the cost of laying water mains would most probably be greater than that of proposal shown in the accompanying sketch. A further point is that the water mains might be damaged at the same time as the holder, and, considering that the whole operation of sealing should be completed in a few seconds, water mains of relatively large diameter would be necessary. The arrangement of the inlet and outlet connexions to most types of holders is such that water flooding can be resorted to.

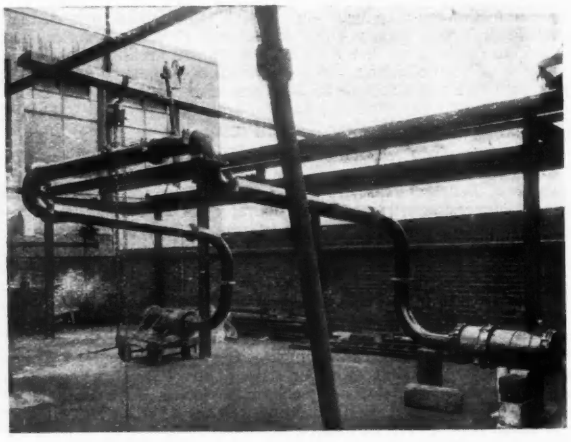
The equipment necessary for this scheme consists of an elevated galvanized tank (A) of sufficient capacity to seal the syphon and main to a definite height, the connexion from the tank to the main being of sufficient diameter to empty the tank as quickly as possible.

Two valves are inserted in the connecting pipe between the tank and main, one a stop valve (B), always to be closed in normal times, and the other, an emergency opening valve (C) for quick opening by pressing a button at any remote control station. This valve would be of an electro-magnetic type, ensuring quick and positive operation by means of a weight-loaded lever. The whole system can be operated from an ordinary lighting circuit or storage battery.

Any number of push button control stations can be used. In place of an electro-magnetic valve, the valve could be arranged with a catch to be operated by a lever, with wire ropes and pulleys, and operated at a safe distance from the holder.

Emergency Connexions for Fractured Mains

A large number of gas and water engineers, Government and public works officials, including representatives of the Gas Light and Coke Company, South Suburban Gas Company, Commercial Gas Company, and Bournemouth Gas and Water Company, attended an A.R.P. demonstration arranged by the Victaulic Company, Ltd., at the works of the London Hydraulic Power Company at Southwark on March 31. The object was to show the advantages of a system of emergency connexions for gas and water mains fractured by bombing developed by the Victaulic Company in collaboration with the Margate Corporation water undertaking, through their Engineer, Mr. E. A. Crisp.



Victaulic Flexible Joint Arrangement for Making Emergency Connexions in Mains Fractured by Bombing.

The connexions are in the form of standard by-pass units applicable to a range of main diameters, and the arrangement makes use of the fact that when two 90° elbows or bends are joined with a Victaulic joint the free ends can swivel through 360° with relation to each other. Three pipes are joined with the swivelling units and formed into a U loop and other swivelling units are fitted outwards from the open ends of the U and coupled to the fractured ends of the main with special closer joints and reducers. Such an assembly can be used to bridge gaps of any width from 4 to 40 ft., and if a wider gap has to be catered for, additional lengths of pipe can be added to any limb of the loop. The loop is not confined to any particular plane but can be swung about the axis of the fractured main. If a bomb has broken the main the loop can pass around the rim of the crater formed, or downwards along the bottom of the crater, or even upwards to clear accumulated debris as circumstances may require.

To be prepared for any main breaking, an undertaking would require to stock closer joints and reducers to suit every size of main under its control, but only a limited number of the standard units. At the demonstration the arrangement shown in the illustration was set up in a few minutes, and its reliability was tested by water at 100 lb. pressure.

Burnley Interlinking Proposals

The Burnley Corporation General Purposes Committee has given its approval to a scheme prepared by Mr. A. F. Ames, Engineer and Manager of the Gas Department, for ensuring a continuity of the town's gas supply in war time. The scheme, estimated to cost £8,112, includes proposals to link up the town's mains with those of the neighbouring authorities of Padiham and Nelson.

Athletic and Social

Maidstone Sports Club Presentation.

A chiming clock has been presented to Mr. Howard Small by the Maidstone Gas Company's Sports Club in recognition of his services over a period of sixteen years as Honorary Secretary.

Blackburn Social and Benevolent Fund.

At the sixteenth annual meeting of Blackburn Corporation Gas Department Social and Benevolent Club, on March 28, Mr. T. Farrimond, a Meter Inspector, who is retiring after thirty-eight years' continuous service, was presented with a smokers' outfit. Mr. J. Farrell was elected Chairman for next year with Mr. J. Neville as Vice-Chairman.

Cheltenham Annual Dinner.

Progress in several directions made by the Cheltenham and District Gas Company during the past year was referred to by the Commercial Manager, Mr. A. L. Morris, at the annual dinner of the Company held on March 24 at Boots Café, Cheltenham.

Mr. Morris, who presided, proposed the toast of "Our Company," and referred to the loss they had sustained through the death of Mr. L. E. Twycross, the Engineer and Works Manager, who, he said, had served for more than forty years. Continuing, Mr. Morris said that the output of gas during 1938 was approximately equal to that of the previous year. It should be remembered that the output during the two previous years had shown an increase of 66 million cu.ft., and to have maintained the output during an exceptionally mild year was very satisfactory. In the past eight years more than 8,000 fires and radiators had been installed in Cheltenham. "It will interest you to know," he went on "that in the very cold period last December the previous daily output record was broken on six occasions, on each of which more than 3 million cu.ft. of gas was sent out daily. The day record now stands at 3,600,000 cu.ft., and in one day alone, during the period referred to, the increase was over a million cu.ft. compared with the corresponding day of the previous year." The sale of gas in 1938 was 713,510,400 cu.ft., and the total number of consumers was 26,224—an average of over 27,000 cu.ft. per consumer.

The toast of "The Visitors" was proposed by Mr. G. F. Ticehurst (Clerk to the Company), and the response was made by Mr. J. Morgan Matthews, a Director of the Gloucester Company.

The chief guest was Mr. H. A. Thomas, a member of the Board of Directors.

An excellent after-dinner entertainment was provided. Arrangements were in the hands of Mr. F. W. Turner and a Dinner Committee, of which he was secretary. There were 286 people present, including several old members of the Company.

An Exeter Dinner.

The debt which the country in general and the City of Exeter in particular owed to the Gas Industry was emphasized by Mr. R. J. Rew in proposing "Prosperity to Willey & Co., Ltd., the Vulcan Stove Company, Ltd., and the Directors" at the fifth annual dinner of the firms' Athletic and Sports Club on Tuesday, March 28. Mr. Rew considered it an honour to be entrusted with a toast that had to do with the welfare, prosperity, and happiness of the Directors and employees in that room and nearly 1,000 employees outside. Theirs was an industry which formed part of the foundations on which the Gas Industry rested. It had to fight for years with its back to the wall against old-fashioned legislation and prejudice, and now against a 20% increase in the price of coal. The Industry had to look on while its great rival, electricity, was subsidized by sixty million pounds of public money and pampered by succeeding Governments. He thought, however that the Gas Industry to-day was commercially more sound and better for having had to fight its own battles and find its own capital. Response was first by the President of the Club, Mr. Thornton Willey, who welcomed Mr. Lewis Smith, Managing Director of Smith Meters, Ltd., and expressed regret that Mr. C. Codner was unable to be with them through illness. Mr. Stephen Simpson and Mr. S. E. Cash, Vice-President of the Club, also replied.

The toast of "The Ladies" was proposed by Mr. L. Jones, who mentioned that there were 92 lady members present and coupled with the toast the name of Mrs. Thornton Willey, who replied.

Mr. F. B. Roberts said the sports club had had a difficult time in 1938, but intended to carry on. They had lost their playing field, and were going to carry out a cricket programme on the field on which the Alphington Club used to play.

The organization of the dinner was carried out by the Entertainment Committee, of which Mr. G. Oliver is Hon. Secretary, Mr. L. Liddon, General Hon. Secretary, and Mr. R. Husson Treasurer. The Flutterbye's Concert Party, under the direction of Mr. Arthur E. Hamblin, provided entertainment and Mr. Lewis Smith contributed a couple of songs.

Bryan Donkin Staff Dinner.

Described by Alderman G. Clark as "just a family gathering," the eighth staff dinner of the Bryan Donkin Company, Ltd., was held at the Station Hotel, Chesterfield, on March 24. Alderman Clark, who is Chairman of the Company, presided, and among those also present were Mrs. Clark, Mr. H. Davies (Chesterfield Corporation Gas Engineers) and Mrs. Davies, Mr. D. M. Henshaw and Mr. G. F. Chambers (Directors) and Mrs. Chambers, Mr. R. J. Tucker (Assistant Managing Director), Mrs. Tucker, and Mrs. Tucker, Senr., Mr. C. W. Crawshaw (Chief London representative), Mr. and Mrs. F. Chambers, Mr. A. G. Webb (Secretary to the Company) and Mrs. Webb, Mr. L. Seaman (Technical Manager), Mr. P. Hopkinson (Technical Manager of British Furnaces, Ltd.), Mr. W. V. Haslam (Chief Works Manager), who carried out the arrangements, Mr. H. Whiteley (of Messrs. W. C. Holmes & Co., Huddersfield), Mr. C. B. Donkin (Birmingham representative), and Mr. W. A. Hopkins (former Assistant Managing Director).

Mr. Haslam, in proposing "The Bryan Donkin Company," contrasted the conditions prevailing in the early part of the 19th century—when the Company was in its infancy—with those of to-day. They had seen ups and downs, they had seen changes. And one of the changes since their last annual dinner had been the death of Mr. Eustace Abel Smith, their Chairman. He wished to pay a personal tribute to Mr. Eustace Smith. He had known him all the time since he had been connected with the Company, and he had always found him to be a great gentleman, a gentleman in the real sense of the word. They were very glad that it fell to Alderman Clark to be appointed as his successor—a man of great heart and great courage.

Alderman Clark, responding, said it had always been his desire that they should meet away from their work, feeling just one family who had the interest of the works at heart. He then paid a tribute to Dr. G. S. Haslam, of the Technical Staff of British Furnaces, who, he said, would not be with the Company next year. He had done good work, and he was now taking a more responsible position. Alderman Clark also spoke highly of the qualities of Mr. Eustace Abel Smith.

Mr. B. I. Stone, proposing "The Directors," said that visitors to the works had invariably noticed the cordial and friendly atmosphere and the spirit of co-operation which existed between the staff and all departments. And, as in all undertakings, the atmosphere started from the top. For the Staff, the Directors were personified by Alderman Clark, whose friendly spirit and kindly interest in every individual could not but be noticed by every member of the staff.

Mr. D. M. Henshaw, responding, said that they could feel justifiably proud of the past history of the firm. The family spirit which had been referred to was very apparent, and he described Alderman Clark as the father of that family.

Mr. R. J. Tucker, in submitting "The Staff," said that the Company's interests were felt to be a matter of real concern for each member of the staff. Messrs. L. G. A. Leonard and R. E. Olive and Miss I. M. Green responded.

An excellent entertainment was given by Mr. H. Askew, Mr. J. Woodhead, Mr. Bert Copley, Mr. Scott Holland, and Miss Doris Cutts (accompanist).

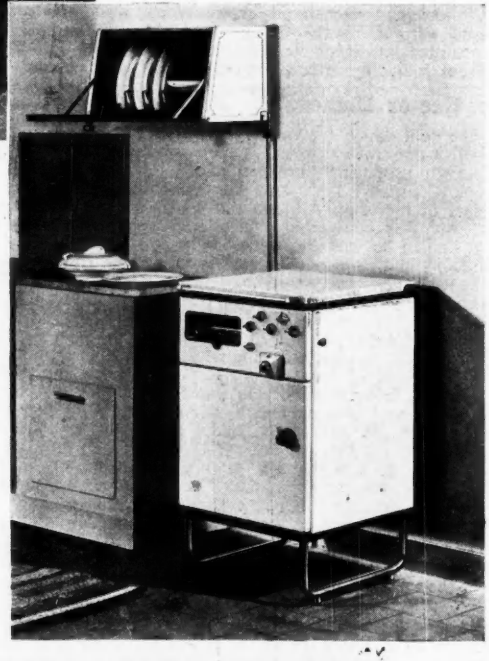
An attractive display was arranged by the City of Coventry Gas Department at a recent Domestic Economy Exhibition. We illustrate above a section of their stand.

ALTERNATIVE ARRANGEMENTS FOR THE No. 57

CABINET COOKER

To satisfy the varying needs of consumers, certain alternative features are obtainable with the No. 57 Cooker. Thus, the Folding Cover can be had with or without a platerack; while in place of the Cover, the standard Main Platerack and Backplates can be substituted; another choice is the small-pattern Backplate. The unique "P.R." Hot-Closet which may, of course, be fitted to the Cooker, can also be obtained as a separate unit for fixing on to the wall. This arrangement enables the Cooker to be had with any choice of, say, Cover, or Platerack and Backplate.

Cast-iron enamelled legs can be had instead of the Chromium Tubular Steel type illustrated. Each kind has a levelling device at each corner.



No. MAIN 57

CABINET GAS COOKER

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Literature obtainable on request

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British Gas Light Company, Ltd.

The Two Hundred and Eighth Ordinary General Meeting of the British Gas Light Company, Ltd., was held at the Chief Office of the Company, 2, The Abbey Garden, Westminster, S.W. 1, on Wednesday, March 29—Mr. HENRY WOODALL, M.Inst.C.E. (Chairman and Managing Director), presiding.

The SECRETARY (Mr. A. J. Mumford) read the notice convening the meeting, together with the reports of the Auditors. The Directors' Report and Statement of Accounts for the year ended Dec. 31, 1938, were taken as read.

THE CHAIRMAN'S ADDRESS.

The CHAIRMAN, moving the adoption of the Report and Accounts, said: You will see in the first paragraph of the Report that we record with deep regret the death of our friend and colleague Mr. Graham Wilkin. He was a most kindly and courteous gentleman and endeared himself to us and to all the staff. He was a man of some leisure which he gave unstintingly to the service of the Company with which his family has been so long and honourably connected. His grandfather, Mr. John Wilkin, was one of the original Directors and served us for 50 years, and Mr. John Wilkin's son, Mr. Frederick Wilkin, followed him and also did 50 years' service—I should think an unique record, father and son serving without a break on one Board for a century. For the first time in the 114 years of our Company's existence the name of "Wilkin" does not appear in the Directorate. Although it may be the name will not be in our reports it will always be remembered by us with respect and gratitude.

I have another sad duty—namely, to report the sudden death on June 20 last in his office here of Mr. G. S. Hatton, our very able and efficient Accountant. Mr. Hatton was one of our most important officials. We owe him a great deal, and perhaps his greatest service was the careful and thorough way in which he trained his staff. I am glad to say that his Chief Assistant, Mr. P. F. Foster, was able to carry on the work of the Accountant's Department without a hitch, backed up, as he was, by a staff of young but well-trained men. Mr. Hatton's death was a great loss and shock to us all. Your Directors much appreciate the determination of his staff to show they are worthy of his example and the sound training he gave them.

Year Not Conducive to Progress.

Conditions in 1938, the year under review, were not conducive to progress, for not only did we have to contend with abnormally mild and unseasonable weather, but the unstable international situation in Europe with its threats and alarms put a serious brake on enterprise, consumers both industrial and private being disinclined to embark on extensions and additional expenditure with the immediate outlook so uncertain.

In consequence we have to record that sales of gas for the year showed a reduction of 3% which was almost entirely attributable to the falling off at our two largest Stations, Hull and Norwich, although the reduced sales of our subsidiaries at seaside towns which, in common with other holiday resorts, suffered an abnormally bad season, had a bearing on the result.

Nevertheless we had individual increases ranging from 11% downwards at twenty of our undertakings, and it is gratifying to see so many of the smaller undertakings showing such good results in spite of difficult times.

We had an indication of the effect of seasonable weather on sales during the sudden cold snap in December. This was of too short duration sensibly to affect the year's figures, but record outputs were experienced in a number of cases. It is satisfactory to be able to state that at all of our undertakings we were able to maintain full pressures, although the sudden change in the course of only a few hours from mild autumn weather to almost arctic conditions threw a very great strain on the various staffs.

As will be seen from the Accounts, after payment of debenture and other interest and dividends on the preference stocks, there is a balance of £53,663 for the year as compared with £58,244 in 1937. The Directors have paid an interim dividend of 3½% on the ordinary stock, and have transferred £10,000 to the General Reserve Fund—which now stands at the substantial figure of £220,000—and if the usual final dividend of 4% be paid the balance to be carried forward will be £78,201, which is £2,827 less than the amount brought in from the last account.

The profits actually earned at Hull and Norwich in the year having been less than the statutory amount which the Parent Company is entitled to draw from those undertakings, the differences have been met out of the respective reserve funds which comprise the accumulated profits earned in previous years in excess of the statutory amounts and whose sole purpose is to equalize the amount available for transfer to the Parent Company each year.

The reduction in these reserve funds amounts to £20,490, but against this the pension and superannuation funds have been increased by over £11,000, and the final result as regards reserves is that general reserve has been increased by £10,000, pension and superannuation funds by £11,052, whereas the Station reserve funds are down by £20,490 and the carry-forward will be £2,827 less; so that on balance we are about £2,000 down, little more than the cost of the stamp duty on the increase of £250,000 in the authorized capital and brokerage and stamp duty, &c., in connexion with investments. When it is realized that although the yield from gas and residual products was some £15,000 lower than in 1937 the cost of coals—less in quantity by 4,600 tons—was £3,000 higher, then we may perhaps feel that the result achieved is not unsatisfactory.

Price of Gas.

The increased costs with which we are faced, particularly in the price of our primary commodity, coal, have to be met, and the Directors reluctantly decided to increase the price of gas at Hull from Oct. 1 by ½d. a therm. The charge there is still low at 8d. a therm, with a wide scale of discounts for large consumers, and it is hoped that the additional revenue will enable that Station to make its full statutory profit in 1939 without drawing further to any appreciable extent on the reserve fund.

At none of the other Stations has the price of gas been increased up to the present, but failing some relief in costs it is feared that such a course will be inevitable in one or two cases. Three of the smaller subsidiary companies have had slightly to increase the price of gas, and the position at all undertakings in this respect is under constant review.

As has already been mentioned, the reduced sales of gas at Hull and Norwich were primarily responsible for the net decrease which has to be recorded. There were two predominant factors, the abnormally mild weather conditions and bad trade.

The effect of weather conditions such as were experienced last year upon an undertaking whose most important function is the sale of refined fuel must be evident to all. Throughout last March the average daily temperature was some 10° or 11° higher than in 1937, and even in December, which gave us a sudden short spell of wintry conditions, the average temperature for the month was actually higher.

Bad trade, with its accompanying increase in unemployment and consequent reduction in spending power, has

affected both Stations As was mentioned last year, the rearmament programme has not brought any appreciable business to these two Stations, and some of their important industries seem to be passing through a difficult period.

It is not pleasant having to explain reductions in sales or profit, but from what has been said the stockholders will appreciate that the position is being closely and anxiously watched. We are not allowing these somewhat adverse conditions to create a defeatist outlook, and we have every confidence that with an improvement in the international situation and the development of a feeling of greater security the position at these two important Stations will improve.

Replacement of Black Cookers.

In the meantime every effort is being made by the Board and the Officials locally to foster the Company's business and to increase the use of gas, and in evidence of this stockholders may be interested to know that during the year nearly 16,000 of the new semi-enamelled cookers were put out to prepayment consumers and on simple hire to ordinary consumers—in great measure in place of old black cookers—and some 14,000 pieces of apparatus were sold for nearly £83,000.

We connected an additional 2,000 consumers during the year, and given normal conditions we may well look forward with confidence to the future.

The two main Stations have been dealt with at some length because they play such a big part in the Company's structure, and the results there were not so good as we could have wished. But there is another side to the picture in the satisfactory progress generally of our smaller undertakings, whose importance is becoming increasingly felt, and one of the reasons for the Company's strong position is that our interests, although well co-ordinated and controlled, are also well dispersed.

There are four items in the balance-sheet to which reference might usefully be made. On the liabilities side it will be noticed that, as is mentioned in the Directors' Report, the amount of the authorized capital has been increased to £1,750,000. It will also be observed that the amount of the issued 5½% "B" Cumulative Preference Stock has been increased by £30,586.

The Cromer Gas Company has for some years been one of our subsidiaries, and it was felt that considerable advantage would accrue if arrangements could be made for some measure of joint working with the neighbouring Sheringham undertaking which, incidentally, supplies water as well as gas. An offer was therefore made for the acquisition from the individual holders of the issued original and additional gas and water stocks in exchange for our 5½% "B" Cumulative Preference Shares, with the alternative of a cash consideration in the case of the water stocks. Acceptance was almost unanimous, and the transaction involved the issue as fully paid of 30,586 shares which were converted, by a resolution passed at an Extraordinary General Meeting held on Oct. 12, 1938, into stock ranking, as from July 1 last, *pari passu* with the then existing stock.

On the assets side it will be seen that the item Revenue Expenditure in Suspense now amounts to just over £97,000. On the face of it this looks formidable, but £56,000 represents expenditure on new mains at Norwich. This could legitimately be charged to fixed capital, but as a great deal of this expenditure arises from the necessity for affording supplies of gas to new housing estates—frequently connected with slum-clearance schemes—the Directors decided not to add the cost to capital, which at Norwich is already rather high, but to write it off against revenue whenever the opportunity occurs. Already £36,000 has been so written off, and the Directors feel the stockholders will agree that this is sound policy.

Bankers' Loan Liquidated.

The fourth item is the temporary loan from bankers which, it will be seen, stood on Dec. 31 at £189,000. Funds required for capital expenditure necessitated by extensions at the Stations and Subsidiary Companies and the acquisition of further undertakings have for the last eighteen months or so been obtained from the Company's bankers by way of loan. This is very satisfactory as a temporary expedient, but obviously cannot be allowed to continue indefinitely, and after consulting with our bankers we decided in December to liquidate the greater part of the loan by issuing the remaining 164,414 5½% "B" Redeemable Cumulative Preference Shares. A very favourable offer to take up the whole of these shares was received and accepted, payment being made on Jan. 3 this year, the proceeds being applied in part repayment of the loan from the Bank. The transaction does not, strictly speaking, come within the scope of the present review which relates to the year 1938, but it is thought that the stockholders might wish to know the position regarding the loan.

We are again borrowing from the Bank, and it is proposed to continue to take advantage of the facilities offered, but in response to requests received from time to time the Directors are considering the possibility, when further capital is required, of offering an issue of ordinary shares to the stockholders. The last time members were invited to take up an issue of ordinary shares was as long ago as 1915, and from enquiries they have had the Directors think there may be a number of stockholders who would welcome an opportunity of increasing their holdings.

Special Orders.

The Special Order in respect of the Hull Undertaking was made by the Board of Trade on July 22, 1938, in substantially the same form as the draft submitted to the Stockholders at the Extraordinary General Meeting on Dec. 8, 1937. In consequence, the capital which the Company is authorized to expend at that Station is increased to £1,125,000, and the statutory profit which the Company can take, until that limit is reached, will now be calculated on the total money actually employed there, which means an immediate increase of some £4,000 per annum, but this figure will fluctuate according to the capital expended at the Undertaking.

The Order in respect of the Fenny Stratford Station, application for which was approved at the Extraordinary General Meeting held on March 30, 1938, was made on March 21 and will have effect from July 1. As was mentioned at the last Annual General Meeting, this Order was applied for in compliance with a Notice served by the Board of Trade under Section 9 of the Gas Undertakings Act, 1934, and will place that Undertaking on a statutory basis.

As will be seen from the list attached to the Accounts, the Aylsham, Chatteris, and Storrington Undertakings have now been converted into Stations. The three small companies which previously owned these undertakings have been wound up. At Aylsham the manufacturing plant has been closed down, and gas is now being supplied from the Norwich Station. We are also making arrangements to discontinue gas making at Halstead and supply that Undertaking from the Braintree works.

Following negotiations we have entered into an agreement with the Horsham Rural District Council to purchase their gas undertaking at Billingshurst, which is in close proximity to the Petworth and Storrington Stations. Before the transaction can be completed it is necessary to obtain an Order under the Gas Undertakings Acts, 1920 to 1934, and the stockholders' approval of an application to the Board of Trade for this purpose will be sought at an Extraordinary General Meeting to be held at the conclusion of this Meeting.

High Efficiency.

The Directors' Report states that the works and plant at all undertakings controlled by the Company have been kept in a proper state of efficiency, and this is no mere platitude. Repairs, renewals, enlargements, and extensions are constantly being carried out on the works and on the district. To give an instance, in the last year five entirely new gasholders were completed, and we have another now in hand. One works has been almost wholly reconstructed, and at others considerable alterations have been or are being made which will result in better control and greater efficiency in working.

There has been equal activity on the district side. Showrooms have been enlarged and improved, additional premises have been taken, and every effort is being made to ensure to consumers a satisfactory supply of gas and good service and to bring to their notice the many attractive appliances which are now available and the manifold uses to which gas can be put.

I cannot conclude without paying a tribute to the staff and the workpeople, both men and women. The pension

fund is much appreciated and the provision of playing fields, &c., helps to create a very friendly and healthy atmosphere and has enabled us to go through a troubled period with the minimum of worry and friction. We have in the last few years lost a number of our older people, and our leading officials are now nearly all young men who have been brought up in the Company and are proud of it, and we thank them for their good service on which our prosperity so much depends.

The CHAIRMAN then formally moved that the Report and Accounts be received, adopted, and entered on the minutes of the meeting.

The DEPUTY-CHAIRMAN (Mr. Harold G. Palmer) seconded, and the resolution was carried unanimously.

Dividends.

The CHAIRMAN thereafter moved:

> That the payment by the Directors of the dividends at the rates of 7% per annum, less income-tax, on the Cumulative Preference Stock, and 5½% per annum, less income-tax, on the "B" Redeemable Cumulative Preference Stock, as mentioned in their Report of March 20, 1939, be confirmed.

This was seconded by the DEPUTY-CHAIRMAN and unanimously agreed.

The CHAIRMAN also moved:

> That the payment by the Directors of the Interim Dividend at the rate of 3½%, less income-tax, on the Ordinary Stock, as mentioned in their Report of March 20, be confirmed; and that a Final Dividend on the Ordinary Stock at the rate of 4%, less income-tax, making 7½% for the year, less income-tax, be now declared, the same to be payable on April 5 next; and that the Dividend Warrants be sent by post to the last known address of each proprietor, unless instructions have been received to the contrary.

This resolution was seconded by the DEPUTY-CHAIRMAN and unanimously agreed.

Re-election of Directors.

The CHAIRMAN moved the re-election to the Board of Mr. H. F. H. Jones, being one of the Directors retiring by rotation. Those who were connected with the Gas Industry, he observed, would be familiar with this name, and they were very pleased indeed to have a member of the family on the Board. Mr. Jones was a young man who was well qualified to assist them.

The resolution was seconded by the DEPUTY-CHAIRMAN and carried unanimously, Mr. JONES briefly acknowledging his re-election.

The CHAIRMAN also moved the re-election of the Hon. Geoffrey C. Gibbs, who was appointed to fill the vacancy occasioned by the death of Mr. Graham Wilkin. He retired at this meeting in accordance with the Company's Articles of Association and offered himself for re-election. His wide knowledge of commerce and finance would be very helpful to the Company.

This resolution was seconded by the DEPUTY-CHAIRMAN and carried unanimously, Mr. GIBBS briefly responding.

Appointment of Auditors.

On the proposition of Mr. F. E. JANSON, seconded by Mr. KENNETH R. MACKAY, the Company's Auditors (Messrs. Cash, Stone, & Co.) were re-appointed.

Mr. WILLIAM CASH, Jnr., thanked the meeting for this renewal of their confidence. He went on to refer to the late Accountant of the Company with whom he and his staff came into contact intimately over a long period of years and for whom they had the greatest regard.

Votes of Thanks.

Capt. W. J. LIBERTY proposed a hearty vote of thanks to the Chairman and Directors for their able management of the Company's affairs during the past year. For a period of more years than he cared to mention Captain Liberty had attended the Annual Meetings of the Company and had watched the way in which the Chairman and Directors had conducted the business of the Company. There were now 41 undertakings within the Company, with a further acquisition at Billingshurst in view. This gave an idea not only of the magnitude of work involved but also of the duties which devolved upon the Board. They could congratulate themselves upon having Mr. Woodall as Chairman; his was a name which gave strength to the stockholders' security.

The resolution was seconded by Mr. A. J. WEST and unanimously carried.

The CHAIRMAN, in acknowledging the vote, said that he had been very fortunate in his colleagues on the Board and also in the staff and workpeople of the Company. Theirs was an old-established Undertaking, and it had always been prosperous; and he thought it would go on being so if conditions became anything like normal. He went on to propose a vote of thanks to the Secretary, other Officers, staff, and workpeople generally; it was to them that so much was due, and they certainly gave of their best to the Company. He remarked upon the fact that the majority of their staff, as well as the Directors, were young men, and the stockholders might be perfectly satisfied that the Company was being well and loyally served.

The DEPUTY-CHAIRMAN seconded the vote of thanks to the staff, which was heartily accorded.

The SECRETARY thanked the Chairman for his kind remarks and the meeting for their cordial reception. The staff were proud to serve this fine old Company and grateful for the encouragement and help they received in carrying out their duties. They also highly valued the great personal interest the Directors took in their comfort and welfare. Mr. Mumford said he would be happy to convey this vote of thanks to all concerned; they would all be delighted to know that their efforts had been so fully recognized.

This concluded the business of the Ordinary General Meeting.

EXTRAORDINARY GENERAL MEETING.

An Extraordinary General Meeting immediately followed at which was approved an application to the Board of Trade for a Special Order in respect of the acquisition from the Horsham Rural District Council of the Billingshurst gas undertaking.

Safety of Aberdeen Gas Supply

A stand-by scheme which would greatly minimize the risk of a complete failure of Aberdeen's gas supply from war damage was approved by the Gas Committee of Aberdeen Town Council on March 29. The scheme is estimated to cost £8,320, and it was decided that application should be made for an A.R.P. grant. Mr. Samuel Milne, Engineer and Manager, outlining the scheme, explained that its purpose is to provide a stand-by to both the high-pressure boosting plant at the gasholder station at Gallowhill and the low-pressure boosting plant at the Gas-Works in Cotton Street. It would at the same time permit of alternative means of gas distribution in times of national emergency. The scheme comprises the laying of a 14-in. high-pressure main between the Gas-Works and the gasholder station, the laying of a new 21 in. main from near the Gas-Works *via* Albion Street to Hanover Square, the installing of a stand-by low-pressure boosting plant, and the provision of a new steam driven high-pressure boosting plant at the Gas-Works.

Gas Undertakings' Results

Tunbridge Wells.

The total quantity of gas sold by the Tunbridge Wells Gas Company during the year ended Dec. 31 last was 2,398,167 therms, which compares with 2,525,407 therms in 1937. There is thus a small falling off in the receipts, and as the expenditure on Revenue Account was practically the same for the two years, the balance carried to Net Revenue Account on the present occasion is some £1,700 down. The dividends for the year are the same, at £7 4s.% on the sliding-scale stock and 5% on the maximum stock, which will leave £25,372 to be carried forward to the credit of the current year. The amount brought in was £27,157. The net increase during the year in the capital expended was £4,420, which brings the balance at debit of Capital Account to £15,033.

Radiation Limited

Mr. H. James Yates' Speech at the Ordinary General Meeting

At the Annual Meeting of the Company held at The Incorporated Accountants' Hall, Victoria Embankment, London, W.C., on the 30th March, 1939, the Chairman, Mr. H. James Yates, said:—

The Report and Balance Sheet of the Directors, together with the Statement combining the Assets and Liabilities of the Subsidiary Companies, have been in your hands for some days. No doubt you have been through these, and therefore I presume you will take them as read. I will, however, comment on certain of the items in the Accounts:—

The Radiation Profit and Loss Account, on pages 4 and 5, shows the Net Income from Subsidiary Companies for the year, together with Transfer Fees and Bank Interest, at £277,831. This is after providing for all taxation, and the amount compares with £327,682 for 1937, a decrease of £49,851. The balance of profits brought forward from the previous year was £131,688, so that deducting the Interim Dividends paid last October, and the amount of £20,000 which it has been thought advisable to transfer to General Reserve, there remains available to the credit of Profit and Loss Account the sum of £314,604, which is carried to the Balance Sheet. After provision of £177,437 for the proposed Final Dividends, there is a balance to the credit of Profit and Loss Account of £137,167 which it is proposed to carry forward to next year, an increase of £5,479 compared with a year ago.

You will notice that in view of the reduced Net Profits the Board has not recommended payment this year of the 2½ per cent. Bonus on the Ordinary Stock. As is indicated in the Directors' Report we are unable, under present trading conditions, to pass on to our customers the whole amount of the increases in cost of manufacture, and further, the economic world generally is in such an unsettled state that caution is necessary. Having regard to these points the Directors, after careful consideration, feel most strongly that continued success will be best assured by adhering to the conservative policy which we have always followed.

On the Assets side of the Radiation Balance Sheet the largest item is £3,822,623, consisting as to £2,392,675, the cost to Radiation of the Investments in the Subsidiary Companies, and as to £1,429,948, the sum due from the Subsidiary Companies to Radiation. The latter amount includes Dividends declared by the Subsidiaries for the year 1938, and balance of Dividends of past years, also amounts due to Radiation for payments it has made on behalf of the Subsidiary Companies.

Turning to the Statement of Combined Assets and Liabilities of the Subsidiary Companies on pages 6 and 7, you will observe that Freehold and Leasehold Land and Buildings, together with Plant and Machinery, show a reduction of £12,669. That reduction is the net figure after allowing for additions to Buildings and Plant during the year and the depreciation written off.

Stocks which a year ago stood at a high figure have been reduced by £160,172, and Sundry Debtors are down by £126,396, a total reduction of over £286,000. These reductions, however, are more than offset by the increase of over £44,000 in Cash and Investments, and the reduction of £255,000 in Sundry Creditors.

Following the item Sundry Creditors on the Liabilities side of the Statement, there is the amount of £3,822,623 for the cost to Radiation of the Investments in Subsidiary Companies and the amount due by the Subsidiaries to Radiation Ltd. This item corresponds to the first entry on the Assets side of the Radiation Balance Sheet to which I have already referred.

The final item in the Combined Statement is the balance to the credit of Profit and Loss Account of the Subsidiary Companies after providing for Taxation, Dividends to Radiation, &c. This stands at £559,658 an increase of £26,168 compared with the amount a year ago.

During the past year we, as other manufacturers, have had to face many difficulties. As already mentioned, costs have continued to rise and our selling prices have not responded. The increases in wages and higher cost of materials, which were only partially felt during 1937, operated throughout the year under review. Further, during the past year the full effect has been experienced of the giving of holidays with pay to our workpeople, and the contribution due from us in connection with our Staff Pension Scheme. The result has been that the percentage of profit has diminished, and the decline in trade which has occurred in various directions has had its effect upon your business.

Nevertheless we have definitely set our face against lowering the quality of our goods in any way; in fact, we continue to improve our apparatus and technical advances, unfortunately, generally involve increase in cost. Our reward, however, is the fact that the name "Radiation" is associated with the highest grade of Gas Apparatus.

Once more I must emphasise that in these days of severe competition and increased manufacturing costs, it is necessary to produce standard articles in bulk. Higher cost, which always results when we are asked to deviate from standard, obviously cannot be faced under present-day conditions.

It has been my custom at the Annual Meeting to give you a general review of our work during the previous year, and this in many instances has been a development of earlier work. Undoubtedly Research has materially contributed to the success of your business. In the very early days of the Industry there were no Laboratories at the various Works, but I always pinned my faith to scientific development in business, and originally I carried out investigations in my own laboratory at home. Eventually I opened a Laboratory at the Essex Works, Birmingham, and instituted Research work as part of the normal activities of the business. In course of time other gas stove firms also installed Laboratories in their Works. When Radiation was formed, Central Research Laboratories were established at Radiation House, London, where new and fundamental Research work could be carried out, as distinct from investigation of the various Works problems, which would continue to be dealt with at the Factories. I can say without hesitation that the Research work which has already been done, and which I hope will always continue, has revolutionised domestic gas apparatus. It is hoped that during the present year further important developments will become practical propositions.

The modern gas appliance is a specialised product, and to obtain the best service from it, the various controls supplied to enable the maximum efficiency to be attained, must be used correctly. For this reason we have a staff of highly trained men—the Radiation Technical Service Department—whose time is devoted to dealing with Gas Undertakings on technical matters. Discussions on a great variety of subjects, expert advice, where required, on the correct adjustment and use of gas apparatus, together with a host of other points, are dealt with by this Department. All this is, of course, arranged with the full co-operation of the Gas Undertakings, and I am confident that this section of the Radiation organisation will prove to be of increasing value in extending the good relations already existing between the Undertakings and Radiation.

Our Central Research Kitchen is also at Radiation House, and we have in addition a large Demonstration Kitchen at our Birmingham Works. Students from Cookery Schools, Demonstrators and others can receive advice from our trained experts. The Radiation School of Cookery, with its service of lectures, and practical help and advice to enquirers, has been greatly appreciated by housewives all over the country. The Central Research Kitchen at Radiation House has witnessed some really remarkable demonstrations of the variety of dishes which can be cooked in the "New World" Cooker under "Regulo" control, without any attention whatever during the cooking period, and, in particular, I can recall the occasion, in 1930, when a six-course dinner, consisting of dishes suggested by a number of famous Chefs, was cooked in this way in their presence, the oven being chained and padlocked during the cooking time to demonstrate in the most convincing fashion that the various dishes would not be touched. When the necessary time had elapsed, the oven was opened, the various courses were tasted, and it was unanimously agreed that everything was perfectly cooked.

From time to time we have been asked to make the tests required for the final judging of recipes submitted in connection with National competitions, and this in itself is a tribute to the appreciation with which Radiation and its consistent efforts to improve the standard of domestic cooking in this country is viewed.

I have referred on several occasions to the Radiation Cookery Book. This is now in its Twentieth Edition, and 1,340,000 copies have been sold. Its wealth of detailed information, including the "Regulo" settings for a great variety of recipes, makes it a standard household reference book. This book goes all over the world, and has even been translated into Chinese.

In addition to the Radiation Cookery Book, a considerable number of smaller booklets, many of them containing illustrations, have been prepared and issued with the object of assisting users to make the most of their "New World" Cookers. These separate brochures give carefully-prepared selections of recipes for various occasions, and judging by the very large number which we have supplied, they are both helpful and popular. The Cookery Book and these additional booklets form a good illustration of the service which we extend to housewives.

You may remember that I have mentioned more than once the subject of Dietetics. From our Research Kitchen in London, we have recently issued a small brochure on this subject, giving the essential facts about diet, with information as to the nutritive

values of various foods, and what is required for the health of the family. I am sure that this booklet will prove a great boon to all those who are anxious to arrange their catering to the best advantage with due regard to judicious expenditure.

We have published also a book "The Economy of Good Carving," dealing with the selecting of joints, poultry, game, etc., and the preparation recommended before cooking. It is fully illustrated to show the best methods of carving various joints and birds. This book has met with a great demand.

Notwithstanding the intense competition from concerns already established, and from others which, within recent times, have entered our industry, Radiation Appliances still hold the premier position.

The "New World" Cooker with its single burner at the back of the oven, and with the "Regulo" control, is used in all parts of the world where gas is available. As I have repeatedly emphasised, there is no oven-heat control so accurate and reliable as the "Regulo," and this word is among our most valuable Trade Marks, and has been registered in many countries. The most recent improvements to our "New World" Cookers are self-lighting hotplate burners, together with refinements in burner design and manufacture, which give such an increase in flame stability that this latest type of burner is technically described as "non-lighting-back" or "self-righting."

Naturally, many of our improvements in domestic appliances have been adapted to other types of our apparatus. Our Large Cooking Apparatus for hospitals, hotels, restaurants, etc., has been continually developed, and I can say confidently that we lead also in these types of appliance. The Radiation Stand at the British Industries Fair, Birmingham, recently held, was devoted almost entirely to a display of our Large Cooking Apparatus, and any of you who saw the Stand will, I am sure, agree that our exhibit showed what very fine Apparatus Radiation manufacture. In particular, I think one could not help being impressed by the 16-oven Hotel Range.

There is one matter in particular which I would like to mention, and that is our "Rado" porcelain enamel. During the last few years we have enormously extended our plant, and I am told by Experts who have visited the Works that it is the finest plant of its type in the country. Every process is under the control of Chemists. As a result of our continued Research work, our enamel is of the highest quality obtainable in the present state of the art. This is of great advantage not only to the householder but also to the Gas Undertakings.

Our Gas Fires and other heaters—among which are included radiators and portable heaters—continue to command a very large sale. No doubt many of you will have seen, and read with interest, the advertisements in the newspapers, periodicals and magazines, dealing with the means for eliminating from our houses any chill-spots in rooms, landings and passages. There is no doubt that gas will find still further application for increasing the comfort of our homes, and the rising standard of living which is both to be expected and encouraged in a civilised community will result in a further demand for gas apparatus.

This also applies to Hot Water Apparatus, in the case of which gas possesses the great advantages of cleanliness and convenience. Our domestic Hot Water appliances of various types—Instantaneous for use over basin or bath, Storage Heaters with "Regulo"-control, and others, for providing really hot water wherever required in the house—have been further developed during the past year.

It has always been my earnest endeavour to ensure that the name "Radiation" should be regarded as the Hall Mark of the high standard of goods made by the Company, and I feel confident that this ideal has been attained. Some of our Trade Marks, such as "Radiation," "New World," "Regulo" and "Beam," are household words throughout the world in connection with domestic gas apparatus.

As in former years, I wish to extend my most appreciative thanks to everyone in the service of the Company for their loyalty and help during the past year.

And now, Ladies and Gentlemen, this is the last occasion on which I have the honour and pleasure of addressing you as Chairman and a Managing Director of Radiation Limited. I have devoted my whole life to the Gas Stove business, and now I feel the time has come when I should hand on to others the responsible work that I have carried on for such a long period. We are fortunate in having with us Managing Directors who also have been associated with the business for many years, and there are the younger men coming along who are taking an increasing share in the responsibilities, and who should be given every opportunity of advancing their position.

I would like to thank not only those present but all the Stockholders of Radiation, for the support and trust accorded to me for such a long period of years.

My Colleagues on the Board have joined with me in extending to Sir C. Herbert Smith the unanimous invitation to accept the Chairmanship of this Company, which I shall shortly be vacating. I am very happy to say that Sir Herbert has accepted our invitation, and the Company is to be heartily congratulated that he has come to this decision.

It is unnecessary for me to enter into detail with regard to your prospective new Chairman's qualities and abilities. His position and high reputation in his own profession, and in the commercial world, are well known, and no words of mine could speak with so impressive effect.

I now have pleasure in moving:—

> "That the Directors' Report and Accounts for the year ended 31st December, 1938, as presented by the Directors, be received and adopted, and that Final Dividends be declared as follows:—3 per cent., less Income Tax, for the half-year to 31st December, 1938, on the 6 per cent. Cumulative Preference Stock; 9⅛ per cent., less Income Tax, on the Ordinary Stock, making, with the Interim Dividend paid in October, 1938, a total Dividend of 12½ per cent. on the Ordinary Stock for the year."

Gas for Motor Transport

In a Paper before the Internal Combustion Engine Group of the Institution of Mechanical Engineers last week, Dr. C. M. Walter said he was of the opinion that encouragement of town gas as a fuel for motor vehicles should in the first place take the form of certain modifications in the methods of taxation of certain classes of vehicles, which is at present based on the unladen weights. In the case of vehicles coming within this class, it is found that where, as in the case of gas-operated vehicles, the weight of storage cylinders and ancillary gear necessary for their operation, is included as part of the unladen weight, for taxation purposes, the vehicle is usually placed in a higher category with a corresponding increase in the amount of the annual tax.

It is hoped that, in the near future, certain modifications will be made in the methods of taxation, which will result in the equipment referred to not being included in the unladen weight for purposes of taxation.

Industrial Hydrogen Plant

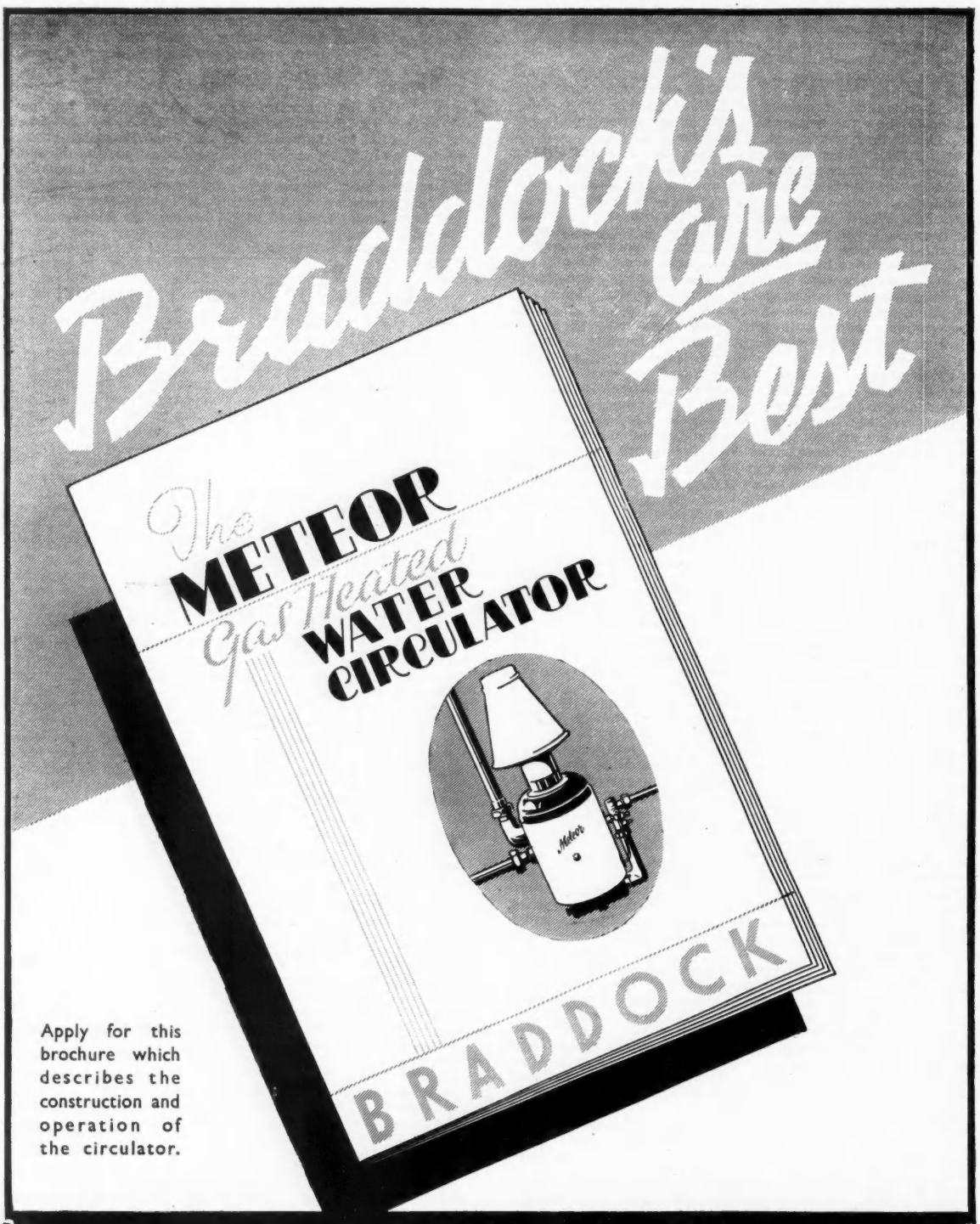
The Power-Gas Corporation, Ltd., and Ashmore, Benson, Pease, & Co., Ltd., of Parkfield Works, Stockton-on-Tees, have for over forty years supplied many processes and plants for the production, treatment, and storage of fuel gas and other industrial gases. Their experience has been adopted in practically all countries of the world, and has been applied to the most varied conditions. Of late, there has been much development of those processes which use as a staple material hydrogen, or a mixture of hydrogen in some predetermined proportion with nitrogen or carbon monoxide. The two Companies have taken a prominent part in this development, and in recent years have supplied numerous plants for the production of hydrogen and other gases at home and abroad. Some of these plants are illustrated and their operation is described in a recently published booklet. Among them, the water-gas plant at Billingham is probably the largest single installation in the world, and includes generator units which are believed to be the largest so far built.

Gas Exhibition at Godalming

Opened by the Mayoress of Godalming, an enterprising and successful Gas Exhibition has just been concluded in that town. A large hall in a well-chosen central position was taken over and much care exercised in arranging a comprehensive display of modern gas appliances, all of which aroused not only considerable interest and favourable comment, but a gratifying volume of business also. The publicity value of such an event is an additional asset which must always be taken into account. A competent staff was in attendance to explain the new and improved features of the equipment seen and to extol the virtues of gas generally. In the unavoidable absence of Mr. F. A. Greene (Managing Director of the Company), Mr. W. J. T. Munfield (Sales Manager) presided at the opening ceremony.

Cookery demonstrations were given twice daily by Miss Alice Henry, B.Sc., the Gas Company's Home Service Organizer, and a varied menu included the preparation and cooking of whole dinners puddings, pies, puff pastry, cakes, biscuits, supper savouries, tips for tea, ways with potatoes, and a host of other equally interesting items. Washing machine demonstrations also proved a popular feature.

The Exhibition attracted a large number of visitors, and particular interest was taken in a Cake Baking Competition for which 139 entries were received. From this number, six prizewinners were selected. The Exhibition was arranged by the Godalming Gas and Coke Company, Ltd., in co-operation with Ascot Gas Water Heaters, Ltd., W. H. Dean & Son, Ltd., Parkinson Stove Company, Ltd., and Radiation Ltd., and the whole effort reflected much credit upon all who were engaged in the organization of this successful project.



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Markets and Manufactures

Current Sales of Gas Products

The London Market

April 3.

There are no changes to report in the values of Tar Products in the London market, which are as follows:

Pitch, nominal, at about 27s. 6d. per ton f.o.b.

Creosote, about 3½d. to 3¾d.

Refined tar, 3¾d.

Pure toluole, about 2s. 3d. to 2s. 4d.

Pure benzole, about 1s. 9d.

95/160 solvent naphtha, 1s. 7d. to 1s. 8d.

90/160 pyridine, 10s.

All per gallon naked at makers' works.

The Provinces

April 3.

Crude Gas-Works Tar, 12s. to 17s.

To avoid misunderstanding, it is necessary to state that the above price is not claimed to represent a market value. It is a price worked out from week to week upon a system which has been used for many years as a basis for the fixing of certain contracts for crude tar of varying qualities in different areas.

The average prices of gas-works products during the week were: Pitch—East Coast, 29s. to 30s. f.o.b. West Coast—Manchester, Liverpool, Clyde, 29s. to 30s.* Toluole, naked, North, 1s. 7½d. to 1s. 9d. Coal tar, crude naphtha, in bulk, North 7¾d. to 8¼d. Solvent naphtha, naked, North, 1s. 4½d. to 1s. 5d. Heavy naphtha, North, 1s. 2¼d. to 1s. 3d. Creosote, *ex* works, in bulk, North, liquid and salty, 3⅞d. to 4⅛d.; low gravity, 4d. to 4¼d. Carbolic acid, 60's, 1s. 7d. to 1s. 10d. Naphthalene, £13 10s. to £16. Salts, 70s. to 75s., bags included. Anthracene, "A" quality, 4¼d. to 4¾d. per minimum 40% purely nominal; "B" quality unsaleable. Heavy oil: Unfiltered anthracene oil, min. gr. 1,080, 4¾d. to 4⅞d; filtered anthracene oil, min. gr. 1,080, 5¼d. to 5⅜d.; heavy tar oil, gr. less than 1,080, 4½d. to 4⅝d.

* All prices for pitch are now quoted on the basis of f.o.b. In order to arrive at the f.a.s. value at any port it will be necessary to deduct the loading costs and the tolls, whatever they may be.

Scotland

GLASGOW, *April* 1.

Market still suffers from lack of new business and prices are largely nominal.

Crude gas-works tar.—The actual value is round 30s. to 32s. per ton *ex* works in bulk.

Pitch of vertical quality is valued at 20s. to 21s. per ton f.o.b. for export and round 20s. per ton *ex* works in bulk for home trade.

Refined tar.—In the home market numerous schedules have been fitted up on the basis of controlled price of 3¾d. to 4d. per gallon. For export supplies can be secured at round 2¾d. to 3d. per gallon, both into buyers' packages at makers' works.

Creosote oil.—There is very little activity with quotations approximately as follows: Specification oil, 3½d. to 3¾d. per gallon; low-gravity, 4¼d. to 4½d. per gallon; neutral oil, 3¾d. to 4d. per gallon; all *ex* works in bulk.

Cresylic acid.—Very little movement is noticeable, with values remaining nominal as follows: Pale, 97/99%, 1s. 2d. to 1s. 3d. per gallon; dark, 97/99%, 1s. to 1s. 1d. per gallon; pale, 99/100%, 1s. 4d. to 1s. 7d. per gallon; all *ex* works in buyers' packages.

Crude naphtha remains steady at 5½d. to 6d. per gallon *ex* works in bulk, according to quality.

Solvent naphtha.—90/160 grade can be secured at 1s. 3½d. to 1s. 4d. per gallon, and 90/190 heavy naphtha at about 1s. 1d. to 1s. 1½d. per gallon.

Motor benzole is 1s. 3d. to 1s. 4d. per gallon.

Pyridine.—90/160 grade is 8s. 6d. to 9s. 6d. per gallon, and 90/140 grade is 9s. 6d. to 10s. 6d. per gallon.

Benzole Prices

These are considered to be the market prices for benzole at the present time:

	s.	d.		s.	d.		
Crude benzole..	0	9½	to	0	10	per gall	at works
Motor „ ..	1	3	„	1	3½	„	„
90% „ ..	1	4	„	1	4½	„	„
Pure „ ..	1	8	„	1	8½	„	„

Contracts Advertised To-Day

Coal.
Leominster Gas and Coke Company, Ltd. [p. 62.]

Gasholder Repairs.
Sleaford Gas Company. [p. 62.]

Gas Oil.
Sidmouth Gas Department. [p. 62.]

Dividend Announcement

South-Western Gas and Water Corporation, Ltd.

At a meeting of the Board on March 30, 1939, it was decided to recommend payment of a final dividend on the Ordinary Shares of 3% actual, less income-tax at 5s. 6d. in the £, making 5% for the year ended Dec. 31, 1938.

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METROTECT

a bituminous paint producing a pleasant satin black finish with highly waterproof and anti-corrosive properties.

Protects steel-work which is continuously or periodically immersed in water. Does not become brittle on prolonged atmospheric exposure. METROTECT flows freely under the brush and can be applied quickly and without effort even in cold weather.

Prices and further particulars from—

SOUTH METROPOLITAN GAS CO.

PRODUCTS DEPARTMENT,
REGIS HOUSE,
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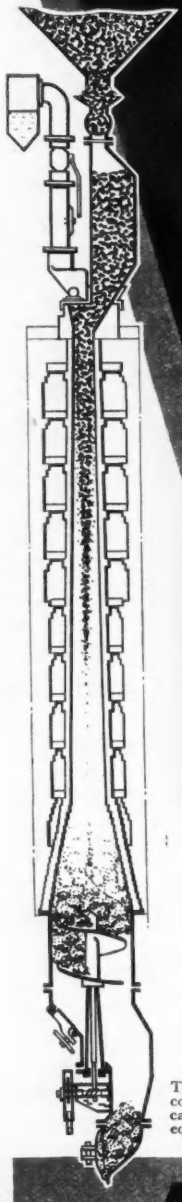
E.C.4.

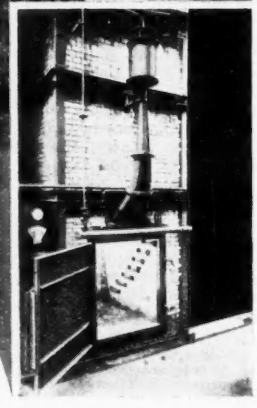
WEST'S

Three installations of Glover-West vertical retorts, with coke-grading and waste-heat recovery equipment, at the Cottesloe gasworks of the Johannesburg Municipal Gas Department, and *(below)* step-grate producer equipped with steam-jet air injector to facilitate the burning of small coke and breeze under pressure—a view in the Glover-West vertical retort house at the Meadow Lane works of the Leeds Corporation Gas Department.

Carbonizing Plants



The Glover-West continuous vertical retort and equipment.



- Increased capacity in relation to ground area covered.
- Output readily adjustable to meet fluctuating demands.
- High yields of gas and coke with low maintenance costs.
- Clean working conditions within the retort house.
- Modern building design and smokeless operation.

WEST'S GAS IMPROVEMENT COMPANY, LTD.
MILES PLATTING, MANCHESTER 10 & COLUMBIA HOUSE, ALDWYCH, W.C.2

Glover-West Vertical Retorts
AND WESTVERTICAL CARBONIZING CHAMBERS

434 PLANTS BUILT OR ORDERED IN 24 COUNTRIES

GAS STOCKS AND SHARES

Business on the Stock Exchange last week was again reduced to very meagre proportions with investors adopting an extremely cautious policy, and any transaction, however small, was sufficient to move prices. The Premier's welcome statement on Friday was made just before the House closed, and although some improvement took place in the Funds, there were few signs elsewhere of any appreciable increase in activity. Home rails closed fractionally lower, and, despite better traffic returns, remained neglected. Practically all industrial issues weakened, though on the whole any liquidation was of a minor character.

The volume of business in the Gas market continued on the small side and was almost confined to the stocks of the leading undertakings. Having regard to the general situation it was inevitable that some reactions should occur, though these were not serious, nor were they so numerous as the previous week. A narrowing of the margins in Gas Light units and Imperial Continental led to a small drop of 3d. in the former and a fractional improvement in the latter. Several other "ordinaries," including Lea Bridge and Tottenham, dropped 2 points, and a few fixed-interest stocks closed a point lower. The only alteration at the Provincial Exchanges was a drop of 3 points in Bristol ordinary stock to 107½, and it will be seen in the Supplementary List that the nominal quotation of Wolverhampton and Yorktown fixed-interest stocks were marked down.

As was intimated in last week's Report, a wide selection of gas preference stocks is now available, some of which have the added security of a revenue from water, and among the largest parcels on offer appear the following:

Amount Offered.	——	Price.	Gross Yield.
£			£ s. d.
2,500	Associated Gas and Water 4½% Cum. £1 .. (Red. at 20s. 1984, or after May, 1974, at 20s. 6d.)	20/-	4 10 0
20,000	Barnet Gas and Water 4½% .. .. .. (Four months' dividend payable Sept. 1)	110½	4 1 9
50,000	British 5½% Cum. Red. 1967 at 105	115	4 15 9
1,000	Gas Light 4%	96	4 3 3
10,000	Gas Light 3¾% Red. 1970	98½	3 16 3
30,000	Romford 4% Red. 1963..	102	3 18 6
10,000	Severn Valley Gas Corpn. 4½% Cum. £1 ..	20/9 free	4 6 9
1,000	South Metropolitan 4%	95	4 4 0
2,500	United Kingdom Gas Corpn. 4% 1st Cum. £1*a*	19/9	4 1 0
4,000	United Kingdom Gas Corpn. 4½% 1st Cum. £1	20/-	4 10 0
800	Tottenham 5½%	116	4 14 9
50,000	Watford 4% Red. 1973/8 .. .. .. (First div. £1 13s. 4d., payable August, 1939)	101½	3 18 9

a Redeemable on 31/12/51 at 20s. 6d., or after 31/12/71 at 20s. 6d. on three months' notice, or on 31/12/80 at 20s. 6d. After 31/12/51 the shares carry dividend at the rate of 5%.

Official Quotations on the London Stock Exchange

Issue. £	When ex-Dividend.	Dividends. Prev. Hf. Yr. % p.a.	Dividends. Last Hf. Yr. % p.a.	NAME.	Quotations March 31.	Rise or Fall on Week.
1,767,439	Mar. 6	8	8	Alliance & Dublin Ord. ...	130—140	−2
374,000	Dec. 19	4	4	Do. 4 p.c. Deb. ...	93—98	...
734,733	Nov. 7	5	5	Asscd. Gas & Water U'd'ts Ord.	17/—19/-	...
500,000	,,	4½	4½	Do. 4½ p.c. Red. Cum. Pref.	19/—21/-	...
444,389	,,	4	4	Do. 4 p.c. Red. Cum. Pref.	19/—21/-	...
296,523	,,	4	4	Do. 4 p.c. Irred. Cum. Pref.	16/—18/-	...
500,000	Mar. 6	3½	3½	Do. 3¾ p.c. Red. Deb. ...	92—97	...
560,070	Feb. 20	7	7	Barnet Ord. 7 p.c.	155—160	...
300,000	Oct. 10	1/9⅔	1/4⅔	Bombay, Ltd.	20/6—22/6	—/6
181,185	Feb. 20	9½	9½	Bournemouth sliding scale ...	192—202	...
690,526	,,	7	7	Do. 7 p.c. max. ...	155—160	...
493,960	,,	6	6	Do. 6 p.c. Pref. ...	128—133	...
50,000	Dec. 19	3	3	Do. 3 p.c. Deb. ...	75—80	...
362,025	,,	4	4	Do. 4 p.c. Deb. ...	95—100	...
335,000	,,	5	5	Do. 5 p.c. Deb. ...	113—118	...
357,900	Feb. 20	7½	7½	Brighton, &c., 6 p.c. Con. ...	141—146	...
659,955	,,	6½	6½	Do. 5 p.c. Con. ...	124—129	...
205,500	,,	6	6	Do. 6 p.c. 'B' Pref.	123—128	−2
855,000	Mar. 20	7	8	British Ord.	128—133*	...
100,000	Dec. 19	7	7	Do. 7 p.c. Pref.	138—143	...
350,000	,,	5½	5½	Do. 5½ p.c. 'B' Cum. Pref.	112—117	...
120,000	,,	4	4	Do. 4 p.c. Red. Deb. ...	94—99	...
450,000	,,	5	5	Do. 5 p.c. Red. Deb. ...	100—105	...
450,000	,,	3½	3½	Do. 3½ p.c. Red. Deb. ...	90—95	...
100,000	22 May '33	6	4	Cape Town, Ltd.	1—2	...
100,000	6 Nov. '33	4½	4½	Do. 4½ p.c. Pref. ...	1—2	...
150,000	Dec. 19	4½	4½	Do. 4½ p.c. Deb. ...	60—70	...
626,860	Feb. 6	6	6	Cardiff Con. Ord.	115—120	...
237,860	Dec. 19	5	5	Do. 5 p.c. Red. Deb. ...	103—108	...
98,936	Mar. 20	2/-	2/-	Colombo Ord.	1⅞—1⅛*	...
24,510	,,	1/4½	1/4½	Do. 7 p.c. Pref. ...	22/—24/-*	...
739,453	Mar. 20	-/11·48	-/11·48	Colonial Gas Assn. Ltd. Ord.	16/—18/-*	...
296,144	,,	1/3·30	1/3·30	Do. 8 p.c. Pref. ...	23/—25/-*	...
1,775,005	Jan. 23	5	4	Commercial Ord.	52—62	...
140,000	Feb. 6	§13/4	4	Do. 4 p.c. Red. Pref. ...	95—100	...
620,000	Dec. 5	3	3	Do. 3 p.c. Deb. ...	62—67	...
286,344	Feb. 20	5	5	Do. 5 p.c. Deb. ...	108—113	...
200,000	,,	§8	4	Do. 3¾ p.c. Red. Deb. ...	95—100	...
807,560	Feb. 20	7	7	Croydon sliding scale ...	127—132	−1
644,590	,,	5	5	Do. max. div.	95—100	...
620,385	Dec. 19	5	5	Do. 5 p.c. Deb. ...	112—117	...
239,000	Feb. 6	5	5	East Hull Ord. 5 p.c.	93—98	...
187,215	Feb. 6	6	6	East Surrey Ord. 5 p.c. ...	113—118	...
176,211	Dec. 5	5	5	Do. 5 p.c. Deb ...	110—115	...
250,000	Nov. 7	8	4	Gas Consolidation Ord. 'B' ...	19/—21/-	...
250,000	,,	4	4	Do. 4 p.c. Red. Cum. Pref.	17/6—19/6	...
19,189,963	Feb. 6	5⅔	5⅔	Gas Light & Coke Ord. ...	19/9—20/9*a*	−/3
2,600,000	,,	3¾	3¾	Do. 3¾ p.c. max. ...	71—74	−1
4,477,106	,,	4	4	Do. 4 p.c. Con. Pref. ...	93—97	...
2,993,000	Jan. 9	3¾	3¾	Do. 3¾ p.c. Red. Pref. ...	95—98	...
8,602,497	Nov. 21	3	3	Do. 3 p.c. Con. Deb. ...	71—76	−1½
3,642,770	,,	5	5	Do. 5 p.c. Red. Deb. ...	108—112	...
3,500,000	,,	4½	4½	Do. 4½ p.c. Red. Deb. ...	105—109	...
700,000	Mar. 6	3½	3½	Do. 3½ p.c. Red. Deb. ...	93—96	...
270,466	Feb. 20	6	6	Harrogate New Cons. ...	115—120	...
157,500	Mar. 20	‡1/-	‡1/-	Hong Kong and China Ord. ...	⅝—¾*	...
213,200	Feb. 6	5⅝	6	Hornsey Con. 3½ p.c. ...	97—102	...
5,600,000	Oct. 24	12	8	Imperial Continental Cap. ...	113—118	+½
172,810	Jan. 23	3½	3½	Do. 3½ p.c. Red. Deb. ...	88—93	...
235,242	Mar. 6	8½	8½	Lea Bridge 5 p.c. Ord. ...	148—158	−2
63,480	Dec. 19	3	3	Maidstone 3 p.c. Deb. ...	68—73	...
45,000	Nov. 21	†10	†10	Malta & Mediterranean ... Metropolitan (of Melbourne)	130—135	...
392,000	Oct. 3	5½	5½	5½ p.c. Red. Deb.	100—105	...
231,977	Feb. 20	5	5	M.S. Utility 'C' Cons. ...	96—101	...
968,658	,,	4	4	Do. 4 p.c. Cons. Pref. ...	90—95	...
390,076	Dec. 19	4	4	M.S. Utility 4 p.c. Deb. ...	92—97	...
148,955	,,	5	5	Do. 5 p.c. Deb. ...	110—115	...
125,000	Jan. 3	3½	3½	Do. 3½ p.c. Red. Bds.	94—97	...
675,000	Nov. 21	†6	†6	Montevideo, Ltd.	70—75	...
250,000	Mar. 6	7½	7½	North Middlesex 6 p.c. Con.	140—145	...
396,160	Feb. 6	5	5	Northampton 5 p.c. max. ...	105—110	...
300,000	Oct. 24	†7	†9	Oriental, Ltd.	145—150	...
468,537	Dec. 5	8	7½	Plymouth & Stonehouse 5 p.c.	130—140	...
621,667	Feb. 20	8½	8½	Portsmouth & Gosport Cons.	154—159	...
241,446	,,	5	5	Do. 5 p.c. max. ...	98—103	...
73,350	,,	5	5	Do. 5 p.c. Pref. ...	103—108	...
75,000	,,	4	4	Do. 4 p.c. Pref. ...	88—93	...
114,000	Feb. 6	5	5	Preston 5 p.c. Pref.	105—110	...
247,966	Dec. 19	4	4	Primitiva 4 p.c. Cons. Deb. ...	96—101	...
625,959	Jan. 9	4	4	Do. 4 p.c. Red. Deb. ...	94—99	...
15,000	Mar. 6	6	6	San Paulo 6 p.c. Cum. Pref. ...	8—9	...
441,275	Sept. 19	1/1⅛	1/1⅛	Severn Val. Gas Cor. Ld. Ord.	20/6—22/6	...
460,810	Mar. 20	-/10⅛	-/10⅛	,, ,, 4½ p.c. Cum. Pref.	19/—21/-*	...
133,201	Mar. 6	8½	5	Shrewsbury 5 p.c. Ord. ...	141—146	...
9,000	June 3	4	‡4	South African Ord.	4½—5½	...
1,371,752	Aug. 22	1/2⅛	1/2⅛	South East'n Gas Cn. Ld. Ord.	21/6—23/6	...
871,636	Mar. 6	-/10⅛	-/10⅛	Do. 4½ p.c. Red. Cum. Pref.	19/—21/-	...
498,818	,,	4	4	Do. 4 p.c. Cum. Pref. ...	17/—19/-	...
450,000	Feb. 6	4	4	Do. 4 p.c. Deb.	96—101	...
150,000	,,	3½	3½	Do. 3½ p.c. Red. Deb. ...	93—98	...
6,709,895	Feb. 6	5	6	South Met. Ord.	94—98	...
1,135,812	,,	6	6	Do. 6 p.c. Irred. Pref. ...	123—128	−2
850,000	,,	4	4	Do. 4 p.c. Irred. Pref. ...	90—95	...
1,895,445	Dec. 19	3	3	Do. 3 p.c. Deb.	71—76	...
1,000,000	Jan. 9	5	5	Do. 5 p.c. Red. Deb. ...	107—110	...
600,000	,,	§31/-	3⅜	Do. 3⅜ p.c. Red. Deb. ...	98—101	...
1,543,795	Jan. 23	6	6	South Suburban Ord. 5 p.c. ...	108—113	...
512,825	,,	5	5	Do. 5 p.c. Pref.	103—108	...
500,000	,,	4	4	Do. 4 p.c. Pref.	90—95	...
250,000	,,	3½	3½	Do. 3½ p.c. Red. Pref. ...	91—96	...
888,587	Dec. 5	5	5	Do. 5 p.c. Deb.	110—115	−1
250,000	,,	4	4	Do. 4 p.c. Deb.	93—98	+1
200,000	Feb. 6	3½	3½	Do. 3½ p.c. Red. Deb. ...	90—95	...
427,859	Sept. 19	8½	9½	S. Western Gas & Water Ord.	16/—18/-	...
160,523	Oct. 10	-/10½	-/10½	Do. 4½ p.c. Red. Cum. Pf.	19/—21/-	...
110,000	Dec. 19	4	4	Do. 4 p.c. Red. Deb. ...	95—100	...
750,541	Feb. 6	5	5½	Southampton Ord. 5 p.c. ...	104—109	...
148,836	Dec. 19	4	4	Do. 4 p.c. Deb.	93—98	...
350,000	Feb. 6	5½	5½	Swansea 5½ p.c. Red. Pref. ...	105—110	...
200,000	Dec. 19	3½	3½	Do. 3½ p.c. Red. Deb. ...	92—97	...
1,076,490	Feb. 20	6½	6½	Tottenham and District Ord.	120—125	−2
409,835	,,	5½	5½	Do. 5½ p.c. Pref.	113—118	−1
62,235	,,	5	5	Do. 5 p.c. Pref.	103—108	...
453,380	Dec. 5	4	4	Do. 4 p.c. Deb.	90—95	...
85,701	Jan. 9	6	6	Tuscan 6 p.c. Red. Deb. ...	95—100	...
1,131,550	Aug. 22	6	4	U. Kingdom Gas Cor. Ord. ...	18/—19/-	...
1,051,280	Nov. 7	4½	4½	Do. 4½ p.c. 1st Cum. Pref.	19/—21/-	...
762,241	,,	4	4	Do. 4 p.c. 1st Red. Cum. Pf.	19/—21/-	...
745,263	Dec. 19	4½	4½	Do. 4½ p.c. 2nd Non-Cum. Pf.	15/6—17/6	...
1,066,186	Mar. 6	3½	3½	Do. 3½ p.c. Red. Deb. ...	96—99	...
378,106	Mar. 6	7	7	Uxbridge, &c., 5 p.c.	122—127	...
133,010	,,	5	5	Do. 5 p.c. Pref. ...	102—107	...
1,371,138	Jan. 23	7	7	Wandsworth Consolidated ...	120—125	...
2,525,768	,,	4	4	Do. 4 p.c. Pref.	89—94	−1
1,343,964	Dec. 19	5	5	Do. 5 p.c. Deb. ...	110—115	...
383,745	,,	4	4	Do. 4 p.c. Deb. ...	92—97	...
400,000	,,	§25/-	3⅜	Do. 3⅜ p.c. Red. Deb. ...	96—101	...
558,342	Feb. 6	6½	6½	Watford and St. Albans Ord.	127—132	...
200,000	,,	5	5	Do. 5 p.c. Pref. ...	103—108	...
200,000	,,	5½	5½	Do. 5½ p.c. Pref. ...	110—115	...
200,000	,,	§16/8	4	Do. 4 p.c. Red. Pref. ...	95—100	...
200,000	Dec. 19	4	4	Do. 4 p.c. Red. Deb. ...	93—98	...
200,000	,,	3½	3½	Do. 3½ p.c. Red. Deb. ...	92—97	...

a.—The quotation is per £1 of stock. * Ex. div. † Paid free of income-tax. ‡ For year. § Actual.

Supplementary List and Provincial Exchanges overleaf.

STOCK AND SHARE LIST—Cont.

Supplementary List, not Officially Quoted, London

Issue. £	When ex-Dividend.	Dividends. Prev. Hf. Yr. % p.a.	Dividends. Last Hf. Yr. % p.a.	NAME.	Nominal Quotations March 31.	Rise or Fall on Week.
202,152	Mar. 20	5	5	Ascot Ord.	99—104*	...
128,182	Dec. 19	5	5	Do. 5 p.c. Pref.	102—107	...
31,035	Mar. 20	–/4⅛	–/4⅛	Associated Utilities 4 p.c. Pref.	15/—17/–*	...
100,000	Dec. 19	3½	3½	Do. 3½ p.c. Red. Deb. ...	95—100	...
17,000	Feb. 20	8	8	Bognor Orig. Ord. 'A' ...	152—162	...
62,210	,,	8	8	Do. New Addl. 'A' ...	152—162	...
87,160	,,	7	7	Do. New 7 p.c. max. ...	142—152	...
37,440	Feb. 6	10	10	Cam. Univ. & Town 10 p.c. max.	183—193	...
125,970	,,	7	7	Do. 7 p.c. max.	131—136	...
39,025	,,	5	5	Do. 5 p.c. max.	95—100	...
96,410	Feb. 6	4½	4½	Cardiff 4½ p.c. Pref. ...	93—98	...
150,000	Feb. 20	4	4	Croydon 4 p.c. Pref. ...	91—96	...
130 000	Dec. 19	4	4	Do. 4 p.c. Deb.	93—98	...
65,000	Mar. 6	7½	7½	Eastbourne 'A' 5 p.c. ...	128—133	...
198,000	,,	6	6⅝	Do. 'B' 3½ p.c.	111—116	...
112,312	,,	5	5	Do. 5 p.c. Pref.	102—107	...
130,000	Dec. 19	5	5	Do. 5 p.c. Deb.	108—113	...
24,000	Feb. 20	8½	8½	Great Yarmouth 8½ p.c. max.	30—35	...
59,400	,,	7½	7½	Do 7½ p.c. max.	27—32	...
51,160	Dec. 5	5½	5½	Do. 5½ p.c. Deb.	117—122	...
152,600	Feb. 20	8	9	Guildford Cons.	160—165	...
54,055	,,	5	5	Do. 5 p.c. Pref.	102—107	...
68,250	Dec. 19	5	5	Do. 5 p.c. Deb.	109—114	...
156,600	Feb. 20	7½	7½	Hampton Court Cons. ...	120—125	...
80,000	Mar. 6	4	4	Lea Bridge 4 p.c. Pref. ...	90—95	...
60,000	,,	6	6	Do. 6 p.c. Pref.	120—125	...
94,876	Dec. 5	4	4	Do. 4 p.c. Deb.	90—95	...
73,620	Mar. 6	8⅝	8⅝	Luton Cons. 'A'	150—160	...
107,960	Mar. 20	4	5⅛	Mid Kent Ord.	8½—9½*	...
230,940	Feb. 6	10	10	Oxford & District Ord. ...	192—197	...
47,112	,,	5	5	Do. 5 p.c. Pref.	102—107	...
50,000	,,	6	6	Do. 6 p.c. Red. Pref. ...	108—113	...
126,193	Nov. 7	7½	7½	Peterborough Ord.	137—142	...
64,990	Mar. 6	7½	7½	Redditch Ord.	115—125	...
166,850	Feb. 6	8	8	Romford Ord.	142—147	...
60,000	,,	4	4	Do. 4 p.c. Pref.	97—102	...
44,000	Mar. 20	5	5	Do. 5 p.c. Deb.	108—113*	...
25,570	Feb. 6	5½	5½	Rugby 5½ p.c. Pref.	118—123	...
25,000	,,	6	6	Do. 6 p.c. Red. Pref. ...	103—108	...
42,750	Dec. 5	5½	5½	Do. 5½ p.c. Deb.	117—122	...
110,950	Feb. 20	8	8	Ryde Ord.	137—147	...
270,086	Mar. 20	7	7	Slough Ord.	126—131*	...
21,000	Dec. 19	5	5	Do. 5 p.c. Deb.	107—112	...
28,872	Nov. 7	5½	5½	S. Midland Gas Cpn. Ltd. Ord.	17/—19/–	...
28,866	Mar. 6	4½	4½	Do. 4½ p.c. Red. Cum. Pref.	17/—19/–	...
117,228	Feb. 20	5	7	Swindon Cons.	100—105	...
60,425	Dec. 5	5	5	Do. 5 p.c. Deb.	108—113	...
64,380	Dec. 19	5	5	Torquay & Paignton 5 p.c. Pref.	105—110	...
130,000	Feb. 6	5	8	Wakefield Ord.	116—121	...
81,650	,,	5	5	Do. 5 p.c. max.	92—97	...
82,000	Jan. 23	6	6	Weymouth Ord.	101—106	...
98,384	Feb. 6	6	6	Wolverhampton 6 p.c. Pref.	115—120	–2
160,000	Dec. 19	5½	5½	Do. 5½ p.c. Rd. Db.	103—108	...
90,000	Dec. 19	5	5	York 5 p.c. Red. Deb. ...	102—107	...
133,640	Feb. 20	6½	6½	Yorktown (Cam.) 5 p.c. Cons.	115—120	...
120,000	,,	5	5	Do. 5 p.c. Pref.	102—107	–1
35,000	Dec. 5	5½	5½	Do. 5½ p.c. Deb.	112—117	–3

BRISTOL EXCHANGE

Issue. £	When ex-Dividend.	Dividends. Prev. Hf. Yr. % p.a.	Dividends. Last Hf. Yr. % p.a.	NAME.	Quotations March 31.	Rise or Fall on Week.
347,756	Feb. 6	5	6	Bath Cons.	115—117	...
1,667,250	Feb. 6	5	5	Bristol, 5 p.c. max.	106—109	–3
120,420	Dec. 19	4	4	Do. 1st 4 p.c. Deb. ...	98—101	...
415,250	,,	4	4	Do. 2nd 4 p.c. Deb. ...	98—101	...
328,790	,,	5	5	Do. 5 p.c. Deb.	115—118	...
274,000	Feb. 20	5	5	Newport (Mon.) 5 p.c. max. ...	95—97	...
13,200	Mar. 20	7	8⅜	Pontyp'l Gas & W. 10 p.c. 'A'	12⅜—13½*	...
13,600	,,	6	5	Do. 7 p.c. 'B' ...	11½—12*	...
40,000	,,	6	5	Do. 7 p.c. 'C' ...	11½—12*	...
140,778	Feb. 6	5	5	Weston-super-Mare Cons. ...	103½—105½	...
64,338	Dec. 19	4	4	Do. 4 p.c. Deb. ...	98—101	...
33,340	,,	7½	7½	Do. 7½ p.c. Deb. ...	149—152	...

LIVERPOOL EXCHANGE

Issue. £	When ex-Dividend.	Dividends. Prev. Hf. Yr. % p.a.	Dividends. Last Hf. Yr. % p.a.	NAME.	Quotations March 31.	Rise or Fall on Week.
157,150	Feb. 6	5	6½	Chester 5 p.c. Ord.	107—110	...
92,500	Dec. 19	4	4	Do. 4 p.c. Pref.	95—99	...
36,430	,,	3½	3½	Do. 3½ p.c. Deb.	87—90	...
41,890	,,	4	4	Do. 4 p.c. Red. Deb. ...	97—101	...
2,167,410	Feb. 20	6	6	Liverpool 5 p.c. Ord.	120—122	...
245,500	Dec. 19	5	5	Do. 5 p.c. Red. Pref. ...	100—105	...
306,083	Jan. 23	4	4	Do. 4 p.c. Deb. ...	100—102	...
106,280	Feb. 6	10	10	Preston 'A' 10 p.c.	177—187	...
188,219	,,	7	7	Do. 'B' 7 p.c.	129—139	...

NEWCASTLE EXCHANGE

Issue. £	When ex-Dividend.	Dividends. Prev. Hf. Yr. % p.a.	Dividends. Last Hf. Yr. % p.a.	NAME.	Quotations March 31.	Rise or Fall on Week.
122,577	Feb. 20	8	8	Blyth 5 p.c. Ord.	157½—158½	...
732,000	Feb. 20	3	3	Hartlepool G. & W. Cn. & New	67⅞—68½	...
2,061,315	Feb. 6	5	5⅛	Newcastle & Gateshead Con.	22/6–23/–a	...
682,856	,,	4	4	Do. 4 p.c. Pref. ...	99—101	...
776,706	Dec. 19	3½	3½	Do. 3½ p.c. Deb. ...	88—89	...
277,285	Oct. 24	5	5	Do. 5 p.c. Deb. '43 ...	103½—105½	...
332,351	Feb. 6	6	6	Sunderland 6 p.c. max. ...	132½—134½	...

NOTTINGHAM EXCHANGE

Issue. £	When ex-Dividend.	Dividends. Prev. Hf. Yr. % p.a.	Dividends. Last Hf. Yr. % p.a.	NAME.	Quotations March 31.	Rise or Fall on Week.
542,270	Feb. 6	6	9	Derby Con.	132—137	...
55,000	Dec. 19	4	4	Do. 4 p.c. Deb.	100—105	...
20,000	Dec. 19	5	5	Long Eaton 5 p.c. Pref. ...	10—12	...
80,000	,,	5	5	Do. 5 p.c. Deb. ...	105—110	...

SHEFFIELD EXCHANGE

Issue. £	When ex-Dividend.	Dividends. Prev. Hf. Yr. % p.a.	Dividends. Last Hf. Yr. % p.a.	NAME.	Quotations March 31.	Rise or Fall on Week.
10,000	Feb. 6	10	10	Great Grimsby 'A' Ord. ...	180—190	...
6,500	,,	10	10	Do. 'B' Ord. ...	180—190	...
79,000	,,	10	10	Do. 'C' Ord. ...	175—185	...
1,806,339	Feb. 20	6½	6½	Sheffield Cons.	135½—137½	...
95,000	Dec. 19	4	4	Do. 4 p.c. Deb.	100—102	...

a The quotation is per £1 of Stock.
* Ex div.

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